UPPLEMENT.

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o. 2168.—Vol. XLVII.

LONDON, SATURDAY, MARCH 10, 1877.

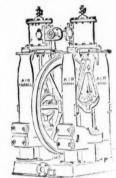
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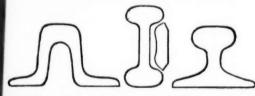
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At the south end of the St. Gothard Tunnel, where

Are exclusively used, the advance made during eight consecutive weeks, ending February 7, was 24 90, 27 60, 24 80, 26 10, 28 30, 27 10, 28 40, 28 70 metres. Total advance of south heading during January was 121.30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tunnel, the McKean Rock Drill continued to work until the pressure was reduced to one-half atmosphere (71 lbs.), showing almost the entire motive force to be available for the blow against the rock-a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these Machines for the SEVERN TUNNEL; the LONDON AND NORTH-WESTERN RAILWAY for the FESTINIOG TUN-NEL: and the BRITISH GOVERNMENT for several Public Works. A considerable number of Mining Companies are now using them. Shafts and Galleries are driven at from three to six times the speed of hand labour, according to the size and number of machines employed, and with important saving in cost. The ratio of advantage over hand labour is greatest where the rock is hardest.

These Machines possess many advantages, which give them a value unapproached by any other system of Boring Machine.

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The McKEAN ROCK DRILLS are the most powerful—the most portable—the most durable—the most compact—of the best mechanical device. They contain the fewest parts—have no weak parts-act without shock upon any of the operating parts-work with a lower pressure than any other Rock Drill-may be worked at a higher pressure than any other -may be run with safety to FIFTEEN HUNDRED STROKES PER MINUTE—do not require a mechanic to work them—are the smallest, shortest, and lightest of all machines-will give the longest feed without change of tool-work with long or short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or open work. Their working parts are best protected against grit and accidents. The various methods of mounting them are the most efficient.

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Has only two moving parts—thus ensuring freedom from de-rangement, and is absolutely self-feeding.

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4 .-- THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom and abroad—viz.,

and abroad—viz.,

The Greenside Mines, Patteriale, Cumberland; London Lead Company's Mines Darlington, Colberry, Nanth-ad, and Bollyhope; the Stonecroft and Greyside Mines, Hexham, Northumerland; Wanlockhead Mines, Abington, Scotland (the Duke of Buceleuch's); Bewick Partners, Haydon Bridge: the Oid Darren, Esgairmwyn, and Ystumtuen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines, Darlington; also Mr. Sewell, for Argentiferous Copper Mines, Pen; the Bratzberg Copper Mines, Norway, and Mines in Italy, Germany, United States of America, and Australia. From all of whom certificates of the complete efficiency of the system can be had WASTE HEAPS, consisting of refuse chats and skimpings of a

former washing, containing a mixture of lead, blende, and sulphur, DRESSED TO A PROFIT.

Mr. Bainbridge, C.E., of the London Company's Mines, Middletons-Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly rolit on our Nenthead waste heaps amounted last year to £800, tesides the mainery being occupied for some months in dressing ore-stuff from the mines. Of ourse, if it had been wholly engaged in dressing wastes our returns would have the greater: but it is giving us every satisfaction, and bringing the waste heaps to profitable use, which would otherwise remain dormaut."

into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines, Wanlockhead, Abington, N.B., writing on 20th March, 1876, says.—"I have much pleasure in stating that a full and superior set of your Ore Dressing Machinery has been at work at these mines for fully a month, and each day as the moving parts become smoother, and those in charge understand the working of the machinery better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply, and satisfactorily than by any other method."

Mr. BAINBRIGE, speaking of machinery supplied Colberry Mines, says—"Your machinery saves fully one-half on old wages, and vastly more on the wages we have now to pay. Over and above the saving in cost is the saving in oce, which is n.t much short of 10 per cent."

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say-"The mr. Montague Beale says—"It will separate ore, however close

Mr. C. DODSWORTH says—"It is the very best for the purpose of will do for any kind of metallic ores—the very thing so long needed for dress g-floors." Drawings, specifications, and estimates will be forwarded on application to-

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MARCH 10

In our report st month of the ctations which at "the turn lly, especially i on the first mo

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ROBEY & ENGINEERS, LINCOLN,



THE PATENT ROBEY FIXED ENGINE AND LOCOMOTIVE BOILER COMBINED,





PATENT IMPROVED ROBEY MINING ENGINE, OF ALL SIZES, FROM 4 TO 50-HORSE POWER.

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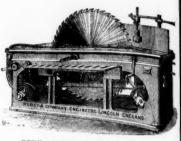
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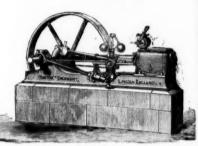
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SUPERIOR PORTABLE ENGINES, 4 to 50 horse power.









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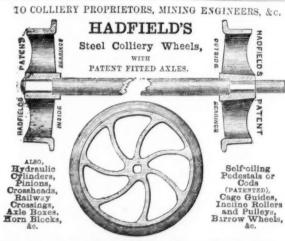




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OXLAND AND HOCKING'S

aparison British le as slightly ingots, ca numerat ellow metal was 77,517 has increased ports from E s usual to (

per cent. spectively The quali tailed and with the su at over 270, weeks of the the two per British is

unenumera Last year to our iron ex which wer ruary, 1870 February, then was States and France, Ge countries v not been th hoped that

Original Correspondence.

OUR COMMERCE IN METALS.

In our report of the imports and exports of metals during the nst month of the present year attention was naturally called to the ectations which prevailed throughout the last quarter of 1876 aretations which the year," which is now advancing, trade gene ally especially in metals, would show considerable revival, and ally, especially in metals, would show considerable revival, and the first month of the year transpired it was our painful duty of record the signal disappointment of those anticipations. Still be general public, and more particularly miners and manufacturers and exporters of metals, remained sanguine that the opening of pring would effect a favourable change. The first spring month and a third of the month of March have come and gone without the sanguage of improvement which were relied upon so hopefully. pring would effect a lavourable change. The first spring month and shird of the month of March have come and gone without has signs of improvement which were relied upon so hopefully. February was probably the most rainy month in the memory of man, rendering such agricultural labour as usually takes place at that period of the year nearly impossible, and consequently disearching the class most concerned, from purchasing the implements made from metals so extensively used by them. Railway travelling, and even the transport of particular classes of goods, were as much as possible deferred, producing depression in a deartment in which there is so large a consumption of metals. The hilding trades both here and in France, a great activity in which was confidently predicted, were at a standstill from the same cause, and the increased demand for lead, zinc, brass, and builders' ironmongery, which it was reasonable to feel assured would take place, did not supervene. The uncertainty of affairs in Eastern Europe impeded the export trade, and capitalists who contemplated fair mining adventure were slow to invest in any undertaking which the advent of war might endanger or injure.

oning adventure were stow to invest in any undertaking which he advent of war might endanger or injure.

To all these impediments to business—and to mining, one of its just sensitive branches—was added the most extensive and terrible mine ever known in India, and that country is among our best resign and colonial customers for all the metals, superior and inprign and colonial customers for all the metals, superior and inprior. Looking at the vast famine map hanging in the council
lamber at the India Office, some notion may be formed of the area
usstricken, and the tens of millions impoverished by the calamity,
it to be wondered at that with all these adverse influences the
delineat should be dull, and that the miner's pick and hammer
build in so many instances be silent. The surprise may well be
at mining and the branches of business that cannot go on without
the delineate of the council of the surprise may well be
at mining and the pranches of business that cannot go on without
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the surprise may be such that the surprise may be surprised to the surprised to hat mining and the branches of business that cannot go on without should have held up so well. On the whole, a hopeful spirit is till cherished that as the spring advances those departments of rade which the Mining Journal represents will revive. The absence of frost and snow through the winter quickens the hope that he Baltic ports will be open at an earlier date than usual, where, indoubtedly, stocks in British metals need to be replenished. The total value of the import trade for February was 30,542,309L, falling off of more than 2% millions as compared with February by year. The value of exports of the productions of the United Lingdom was 14,393,745L, a falling off in the same comparison of kear 2100,000L.

2,100,000%

out 2,00,000. Our imports of tin for the month of February were of the declared lue of 106,826L, compared with 174,125L in the previous February. this amount of foreign and colonial tin the value of 7265L was orted. It is probable that more would have arrived from the Straits and Australia but for its low price in the market, which so small a margin for profit with our merchants. It is observsle that the export of foreign and colonial tin has greatly fallen T, being less than one-seventh of what it was in the corresponding onth of February, 1876.

month of February, 1876.
The import of foreign copper ore was 100.3882.; regulus, including precipitates, 131,3702.; unwrought or part wrought, 300,4742. Comparing these figures with 1876 in the same month there is an inrease of ore to the value of nearly 39,0002. Of copper wrought or art wrought the difference is nearly 25,0002. more last year. Of sgulus (precipitates included) there is an increase of over 43,0002. This trade steadily increases, for the figures 1 February, 1876, were 61,4444, and is 18.

he "re-exports" of copper were all wrought or part wrought, and be value was 145,0221. This trade steadily increases, for the figures February, 1876, were 91,4441, and in February, 1875, 73,4951. Our lead imports were valued at 171,4571, against a little more st year, and a great deal less the year before. As is customary, e Board of Trade makes no report of the quantities or values of reign lead exported, probably thinking them too small to report the President of the Board of Trade only undertakes to publish the principal tiens.

e principal items." Prites of iron, copper, or sulphur were received from abroad to a extent in value of 140,420L, and compared with the value in chrary, 1876, there is an increase of about 25,000L.

egrany, 1879, there is an increase of about 25,000%. Since respecter imports, crude or in case, amounted to 35,896%; chrary twelvemonths it was 44,937%. Manufactures of zinc unimerated 28,860%, the previous February it was 18,134%. No acount is given of the re-export of foreign spelter. Quicksilver amounted to 74,764%, and in February, 1876, the importance of the respectively. The re-exports were 20,941% and 1921% respectively.

0217, respectively.

Figure 1. The exports of British tin were of the declared value of 28,125%. The exports of British tin were of the declared value of 28,125%. The exports of British tin were of the previous year shows very slight decline in value.

British lead was sent abroad amounting in value to 68,603%; this includes all descriptions—pig, rolled sheet, piping, and tubing. It was slightly more last year. Copper from British mines unwrought a ingots, cakes, or slabs was worth 61,90%, compared with 72,649% at the corresponding month last year. Wrought or manufactured insummerated 58,807%. February, 1876, it was 72,322%. Mixed or fellow metal sheathing 88,973%. The corresponding month last year twas 77,517%. The total value of British copper exports for February wasestimated at 209,776%, and for the February before 222,488%. There has not been much change in the destination of those metals; mary wase-timated at 209,776L, and for the February before 222,485L. There has not been much change in the destination of those metals; the last named was sent chiefly to British India, where that trade has increased, as the unrelieved distress of Feb., 1876, caused im portefrom England to diminish at that time. Lead found its way as usual to China, with which country our exports of the metal are rapidly and largely increasing. Our chief contomers for tin were the United States, France, and Germany, with all of which the export increases.

A large amount of the superior metal finds a place in hardware, team-engines, locomotives, and machinery, although, of course, hiefly composed of iron and steel, and in the case of fire-arms and minumition copper is an important ingredient. It appears that chieffy composed of iron and steel, and in the case of fire-arms and ammunition copper is an important ingredient. It appears that the value of arms, ammunition, and military stores was nearly 190,000L against a little less in the month with which last February is compared in the returns. Hardware and cutlery are unsumerated, but the total value was 215,793L, against 291,691L the same time last year. Machinery and mill work was valued, exclusive of steam-engines, at 276,863L, which shows a decline of about 25 per cent, upon February, 1876; and steam-engines are estimated respectively at 106,381L, and 185,304L.

The quaiity and value of our iron imports and exports is too de-

respectively at 106,381, and 185,304.

The quality and value of our iron imports and exports is too detailed and voluminous a subject to give the particulars in an articic with the superior metals. Our iron and steel imports were valued at over 270,000L, showing little change in the corresponding four weeks of the previous year. Of this the worth re-exported was in the two periods respectively 21,000L and 30,000L, round numbers.

British iron and steel, and iron and steel combined, in the same menumerated manufactures, were of the united value of 1,272,906L. Last year the amount in February was 1,485,858L; thus the value of our iron exports has again fallen. Not so, however, the quantities, which were last month 138,182 tons, against 135,325 tons in February, 1876; but the falling off in both quantity and value from February, 1875, is as striking as it is to be deplored. The value france, Germany, 1876, and the quantity 154,765 tons. The United France, Germany, India, and British America are almost the only countries which have increased their custom for iron; but this has not been the case in every branch of the manufacture. It is to be hoped that the worst two months of the year is over, and that with

the spring, the most animating and invigorating season in nature, more enterprise at home and abroad will be developed.

NOVA SCOTIA GOLD FIELD.

SIR.—I enclose you a short abstract of returns for 1876 (in advance of any yet published) and will supplement it with descriptive report by next weekly mail.

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*Not in constant work. † Several altogether unemployed. I Conglomerate. † Valuing the ounce at 4l. sterling.

*Halifax, N.S., Feb. 15.

*ACADIENSIS.

THE NEW SILVER MINES IN COLORADO.

SIR,—Being now in England on a visit, and coming from an entirely new mining district in the United States, I request the liberty of sending a few lines to the Journal, which may be of some interest to those engaged in silver mining. The district I speak of is the San Juan, situated in the south-western part of Colorado, among some of the highest and wildest portions of the Rocky Mountain range, and until the last three years was in the possession of the Indians. It is by no means the place for the man of pleasure, as the snow lies on the ground six months of the year, and the year is snow lies on the ground six months of the year, and the year is truly said to consist of "nine months winter, and three months late in the autumn." But Providence has so ordered that this portion of the continent should have remained unexplored when Utah, Nevada, and California have had their mountains upheaved by the pro-spector's pick; but here, in one of the richest mineral districts in the world, the bear and the mountain lion still roam, and their happiness is only broken by the adventurous miner, who chance and misfortune has placed in these homeless mountains. Having my-self been among the first who entered this district, and having traself been among the first who entered this district, and having the velled over the greater part of it during the past three years, I take pleasure in saying that few, if any, mining districts in the United States can equal the Great San Juan. The mines are in granite formation, and crop out in many cases for two miles in length, and the whole country is a perfect network of veins. I have with me a collection of ore from about seventy lodes, all of which came from within 4 feet of the surface, and will run from 50 to 1000 ozs. of silver far the ton, many of them carrying a little gold, besides some silver to the ton, many of them carrying a little gold, besides some 50 per cent. of lead, and some of these three months ago no white man had seen. None of the mines are developed; the deepest shaft is only 150 ft.; in that the ore is increasing in quality and quantity, and has paid the men who sunk it a handsome return besides their wages. Another lode I speak of has a 20-ft. shaft, sunk in solid mine al, which runs 400 ozs, to the ton, but how extensive it is or box deep it will go it is hard to say. Traylling still guiter. in solid mineral, which runs and ozs, to the val, our hard it is or how deep it will go it is hard to say. Travelling still further west, and leaving the higher mountains, the formation changes to limestone, and not long before I left was found an enormous deposit, which has few equals, and covers 50 acres of ground. When I last which has few equals, and covers 50 acres of ground. When I last saw it there were five shafts upon it, but none deeper than 18 ft.; the ore was piled on the dump, and averaged 80 ozs. to the ton. These are some of many I might mention, and I should be pleased to make an appointment and show anyone interested the ores. The mines I speak of are hardly known in the United States, much less in England, but at no distant day will be heard accounts from this district which will greatly surprise the silver mining world.

Inverness-terrace, W. John Lee Stu JOHN LEE STUART.

NEWS FROM NEW MEXICO-No. IV.

THE PROPERTY OF THE MAXWELL LAND GRANT AND RAILWAY COMPANY SOLD FOR TAXES BY THE SHERIFF.—A QUESTION-ABLE TRANSACTION EXPLODED.

SIR, -Before giving an account of what I found on my further progress south, in this territory, I have to refer to parts of my former correspondence. As predicted in my letter, published in the Journal of April I, the territorial authorities (Santa Fé ring) had the property of the Maxwell Land Grant and Railway Company sold for taxes. After all improvements on the grant had been sold out on a judgment in favour of St. Elkins, the counsellor at law for the on a judgment in favour of St. Elkins, the counsellor-at-law for the company, he being president of the company at the time, the sale of the total property (real estate) was announced by the sheriff for Dec 16, and was carried out on Dec. 23, for a judgment amounting to \$11,702-81 and \$620-84 costs, and knocked down at \$16,479, leaving, if not also swallowed by the lawyers, \$4155-35 for the bondholders, who hold bonds to the amount of \$4,799,500 and coupons for several years, and for the stockholders holding a nominal capital of \$5,000,000 nothing. Mr. John Collinson, of London, although holding most of said stock, has, I believe, derived the largest profits of the entire transaction, and with him U.S. Senator Chaffee and others mentioned in my former report. This makes me rememand others mentioned in my former report. This makes me remember that the Mining Journal published on July 1 had an anonymous article—Why Investments by Foreign Corporations in American Mines fail to become profitable—copied from the Denver Mirror, which anonymous article was, as I believe, written by the man who, by his alleged connection with the concern perpetrated on the Hollandars, made American mines appears a identical with swindles on landers, made American mines appear so identical with swindles on the European continent. The Journal has thus been mystified, and should serve to its readers the documents with regard to the same matter as they are contained in the Mining Reviewer of May 29, which I forward herewith.

matter as they are contained in the Mining Reviewer of May 29, which I forward herewith.

The first article referred to thus concludes:—

The Caribou mining property, sold at its true value, developed with a reasonable working capital under the administration of a practicable silver mining capital, on whose sound sense and good judgment the financial agent can rely, who will not mislead the shareholders with millions in sight, thereby starting wrong and disherten and disgusting everyone connected with the business, when millions, or thousands and thousands are not forthcoming, and the property, free from debts and strife, will unquestionably prove very valuable. Should the Caribou mine and mill be sold or change hands, it is to be hoped, for the interest of the new owners as well as for Caribou district and Boulder county, that a sensible, practical silver mining capital will get the management of the Caribou mine,—start right, keep right, rather anderrate the production of the ore, and figure a little higher on the expenses; for my and experience as financial agent has been that at the end of the month the ore promised to be delivered has always fallen short in quantity, and the pay-rolls and expenses were always higher than estimated by the mine superintendent at the commencement of the month. Therefore if a good business man says, in regard to silver mining, that it is simply a question of arithmetic whether it can be made to pay, then the first duty of the mining capital is not to overrate what is in sight, nor to underrate the expenses, because these delivers, looking splendid on paper, must and shall always practically end in disappointment and grief; but if a capable silver mining captain, not trying to mislead his men nor the public by erroneous statements, will attend strictly to his business. appointment and gree; out a capacie saver mining capain, no strying to missean his men nor the public by erroneous statements, will attend strictly to his business, adding to this business tact strict integrity and fewer newspaper articles, he will unquestionably make a great success of the Caribou unine, which is undoubtedly a rich silver mine.—H. J. DE BRUYN PRINGE, Chief Agent Mining Co. Nederland.

That case with the Maxwell Grant and Emma are characteristics for the international business intercourse, and deserve to be well known in all their details. The editor I mentioned in my last letter has not ment the fate he magnited. There is too much of Tilden expendence.

consequence, of settlements along the range. Chilili and Menzanas are good sized villages, and well off on account of rich crops of maize and wheat. Abo, an old Indian pueblo, with large church ruins, but now inhabited by Spanish descendants only, is situated in the only pass for the Rio Grande Valley all along the Menzanas mountain chain. Here I found the first indication of useful mineral deposits since I left the Purts Mountains a stratum of condomountain chain. Here I found the first indication of useful mineral deposits since I left the Puerto Mountains, a stratum of conglomerate very coarse in its lower part, and resembling sand rock in its upper part, carries largely melaconite (oxide of copper), but not in its earthy variety, but in solid globules from the size of a pea to a walnut or eccoant, of a scaly structure and metallic lustre. The stratum is overlaid by a hard sand rock, which, after the conglomerate has crumbled under atmospheric influences, covers its outcrop with huge boulders. But the crumbled material shows the pebbles of melaconite scattered over large areas in the shape that meadow iron ore occurs. As yet no copper ore is gathered, and none made available, but when I showed to the natives how speedily they could gather 5 be, of it and told them it valued at health 18 of the course. they could gather 5 lbs. of it, and told them it valued at about 8c. per pound on the premises, they seemed to become enthusiastically determined to work on the copper placers. At some future time the conglomerate will be worked largely in the Abo Pass, because it crops out for many miles, and shows copper wherever I could see it, and I remained several days about the place to ascertain its extent. On the west side of the Sandia and Menzanas Mountains flows the Rio Grande 8 to 10 miles distant from the mountains which one the Rio Grande, 8 to 10 miles distant from the mountains nows the Rio Grande, 8 to 10 miles distant from the mountains, which on the river side form precipices showing granite below, and topped with strata among which I recognised none older than the permian, the cretaceous being predominant. The Rio Grande Valley is fertile and well populated, Grapes and wine are produced on a large scale at the little towns of Bernallillo, Albuquerque, and Las Lunas, as well as in the Indian pueblos of Sandia and Isleta.

F. M. F. CAZIN, Las Lunas, N. Mexico, Feb. 7. Consulting Mining

OUTLINES OF GEOLOGY-No. V. THE TERTIARY STRATA.

SIR,—These beds were in earlier times thought to be of limited exent; they are now known to be of considerable thickness, and to consist of a variety of deposits, either marine, fresh water, or estuarine. They occupy less areas and are less consolidated than the secondary strata, and contain fresh and salt water fossils, or an admixture of these, as may be supposed from the different agencies at work in the deposition of the beds. The tertiary strata lie generally unconformably on the secondary—that is, the chalk or other secondary strata may have been subject to denudation, and may dip at a different angle to the overlying tertiary denosits. The south-east next ferent angle to the overlying tertiary deposits. The south-east part of England is overlaid more or less by tertiary strata, some parts having been upheaved, and afterwards subject to denudation, giving rise to limited areas or basins, as found in England at present. There is a similar basin around Paris. Other tertiary deposits are found in Belgium, Auvergne, Spain, Austria, Hungary, and Italy. Deposits have also been recognised in North America and in India as tertiary. The rocks composing the tertiary system consist of alternations of sandstones, clays, limestones, marls, and lignites; the limestones and sandstones in some cases are hard and compact, in others loosely aggregated. aggregated.

aggregated.

The tertiary or cainozoic system is divided into eocene, miocene, and pliocene, so named according to the number of species of its fossils found in the several divisions. The eocene strata contain in fossils about 5 per cent.; the miocene, 25 to 40; and the pliocene, from 70 to 90 per cent. of existing species. The following are the strata of the London and Hampshire basins:—

[Hampstead series]

Middle eocene, Paris basin -Headon series. Bagshot series. London clay. Plastic clay. Lower eocene Thanet sands

Thanet sands.

The aggregate thickness of these beds is about 2500 ft., the Bagshot series alone being about 1200 ft., and the London clay, or Bognor series, about 480 ft. The plants that grew in the eccene period indicate a much warmer climate that now prevails in England at least; this may have been caused by the flow of ocean currents, by the direction of prevailing winds, and by the disposition of sea and land. The lignites of Europe, Asia, North America, and New Zealand are each associated with its peculiar character of plants, assimilating in some degree to the existing plants in those countries. The fossil remains consist of foraminifera, actinozoa, bivalve and univalves; cephalopods, a few: chinodermata, annelids: crustaces, a few: fish. cephalopods, a few; echinodermata, annelids; crustacea, a few; fish, great numbers; reptiles, birds, and mammalia. The brachiopods seem to have become extinct in the upper cocene period. The mammalia belonging to a later part of the period are the palcotherium, anoplotherium, lephioden, anthracotherium, charopotamus, adapis, and the smaller microtherium.

The Miocene Beds.—There are no rocks known in Britain as representing these beds: they are known, however, and classed as a

representing these beds; they are known, however, and classed as a separate series in France, Belgium, Germany, Switzerland, Italy, North America, and India. The life of this period includes some gigantic animals, as the dinotherium and mastodon.

The PLIOCENE BEDS consist of two groups in Britain—

2.—Red crag, about 50 ft. in thickness.

2.—Red crag, about 50 ft. in thickness.

1.—Coralline crag, about 40 ft. in thickness.

The coralline crag consists of soft marly sandstones, with some bands of limestone, not coral, as its name implies. The red crag consists of red sandstones and gravel, and not always regularly stratified. The life of this period consist of foraminifera, actinozon, polyzoa, brachiopoda (one species), bivalve and univalves, echinodermata, and mammalia. The pliocene is very limited in extent; patches of it are traced in Normandy, Italy, and South Russia.

There is evidence of considerable volcanic disturbance in the tertiary period, in the crater-like hills, and in some cases interstratification of lava. The overflow of lava is seen in the hills of Auvergne, in Italy, Hungary, Greece, Asia, Australia, and New Zealand; in

in Italy, Hungary, Greece, Asia, Australia, and New Zealand; in Ireland, in the basalts of Antrim, and in Mull.

A great variety of lignites are found in the tertiary, from coal

A great variety of lignites are found in the tertiary, from coal much resembling the true coal, to brown coal, and a peaty material, in Europe, North America, India, and New Zealand.

We now come to the succeeding period, the pleistocene, which is developed in the neighbourhood of Norwich, and called mammaliferous crag; this consists of beds or deposits of sand and gravel, containing shells of marine and fresh water origin, bones of mammalia, as those of the mammoth and mastodon. After the eccene period the climate seems to have become gradually colder until the advent of the glacial period, when the deposition of the northern drift or boulder clay took place, the boulder clay being a denosit of brown clay, sometimes 60 ft. or more in thickness, with large waterworn pieces or granife, whinstone, and sand-tones interspersed through it. The drift extends over the lower parts of Ireland and Scotland, and the northern part of England, to Cambridge and south-Scotland, and the northern part of England, to Cambridge and southward of it. The boulders are derived from regions northward; those found in great quantities in Lancashire and as far as Gloucester have evidently been derived from the rocks of Cumberland or Westmorland. The boulders of shap granite are found in the low grounds of Durham and Yorkshire to the coast, some imbedded, others loose on the surface. The plains of Germany are in a similar way covered on the surface. The plains of Germany are in a similar way covered with drift; the boulders—some of them of immense size—are supposed to have been derived from the rocks of Scandinavia, to have been carried in ice over the Baltic, and deposited in the seas then existing in Central Europe. Since the glacial period there has been an elevation of those seas and other parts of Europe. England may then have been united to France and the Continent, the channels now dividing them having been caused by the action of the sea. After this elevation of the sea we arrive at the cave period; the caves of the Continent and Britain were inhabited by wild animals, as the hyens, bear, &c. Submarine forests and peat beds probably belong to this same period; many instances occur of such along our coast, as at Hartlepool and Redear, which are sometimes laid bare in certain states of the tides. In the tertiary periods we have noticed in the fossils the gradual

appearance of the species which now exist; about one-half the species of mollusca fossils in the beginning of the plicene are now existing, successive beds giving a still larger proportion. It is supposed that many of the plicene mollusca of British seas migrated to the southern seas of Europe during the cold climate prevailing in the pleistocene period, and afterwards returned when the coldness of the climate was less severe.

The pleistocene mammals include elephants, rhinoceros, megaceros, hvens &c.: teeth and hones of these animals have been got from the

The pierstocene mammais include elephants, finitoceros, negaceros, hyena, &c.; teeth and bones of these animals have been got from the frozen ground in Siberia. The remains of the Irish deer are found in numbers in Ireland, and in Austria to the Pyrenees. In this period the northern regions of Europe, Asia, and America constituted one area where the same animals ranged, extending their range as far south in one continent as the other. In Australia are found remains of extinct animals having resemblance to the peculiar structures of life row existing—such are the rigoratic harners or wombar. tures of life now existing—such are the gigantic kangaroo, wombat, tapir, &c. In New Zealand is found the extinct dinornis giganteur, a fossil bird without wings; the apteryz, a wingless bird, now living there being allied to it.—March 6.

OUTLINES OF GEOLOGY.

SIR,—I am much obliged for "M. B. G.'s" courteous reply to my enquiry, and it is only fair to state that since I addressed it I have learned from another source that authracite was actually found in the Great Laxey Mine, and have had the pleasure of examining a specimen of it which a friend of mine personally extracted. It is related of the late Mr. Ennor (who obstinately and persistently denied that galena could be found associated with granite) that when a pure specimen of the latter, in conjunction with an unusually rich silver-lead ore, was submitted to him he facetiously said "It is granite," and then remembering his preconceived notions said "It is not granite." It is certainly remarkable that anthracite should be found under such geological conditions, and we may be pardoned for evincing a little of the scepticism manifested by the above calculative when his longeschribed theory was so by the above celebrity when his long-cherished theory was so ruthlessly exploded. It would be interesting to know what is the hypothesis of our savants on the subject—notably, Prof. Smyth, who I understand has personally examined the phenomena.

Rushen, Isle of Man, March 6.

JOHN BARKELL.

STONE ORE-BREAKER.

SIR.—I have to-day had the pleasure of seeing the inventor of the stone ore-breaker alluded to in "Omega's" letter in the Journal of Feb. 24, and also the machine, which I find combines thorough simplicity, effectiveness, and inexpensiveness of construction, and so far as I have seen must regard it as the best adopted for its object extant, and certainly destined to have a very extensive use on the ground of its portability, effectiveness, and comparatively trilling cost. I think the patentee is wise in purposing to have the parts interchangeable, though the working ones are so ingeniously few, and derangement and accidents (as breakages) are all but impossible, and the wear and tear inappreciable. I also found that the same gentleman has patented a crusher, which from its portability can with readiness be conveyed to any required site (which also applies to the breaker), and in the absence of steam or water power can be driven by manual labour, and will, therefore, confer new advantages and thus enable the carrying out of commercially successful trials in innumerable instances where "Bucking" and hand-hammer crushing would prevent effective barriers to paying results. This machine is adapted to all positions, and especially to those of hilly interior countries, and is certainly adapted to confer a great boon on mining at large, as to my mind it possesses a principle of excellence far surpassing the best lever-roll crusher, and my suggestion to the pro prietor was to get them constructed and placed on sale as early as possible, and let them prove their own intrinsic merit, and tell their own tale.—Liverpool, March 6.

MARTIN BOUNDY.

SLIME DRESSING-TIN AND LEAD ORES.

SIR.—I believe a very great saving both in mineral and expense would take place by adopting the following plan for slime dressing of the ores above referred to, and as the process is extremely simple, and will cost only a trifle to put it into execution, and thus remove all doubt from the question. I would propose that all the slimes coming from the crushing mills or stamps should be conveyed into the centre of what may be termed a round buddle of 60 ft. diameter, the slime to flow into a time of 18 in, diameter, to be fixed on the tou the slime to flow into a tub of 18 in diameter, to be fixed on the top of a cone, over which it would flow, the top of such tub being made perfectly equal, so as to ensure the water or slime passing down the cone and over the surface of the buddle or round space in equal quantities.

quantities.

This diameter (60 ft.) I suggest should have the usual fall from the centre to the outer edge of the buddle, as the present round buddles at work in this county now have. I believe the slimes in the centre would be found to be good enough to be put to the dolly tub, but if not they should be worked as at present in round buddles of smaller diameter—say, of 24 ft. diameter. I believe the tailings of a buddle or central space of the diameter here spoken of (60 ft.) would be found to contain little or no mineral, and if it were found to do so let the slime from the first pass into a second, of the same dimensions, and giving it the same full for settlement as in the first. dimensions, and giving it the same fall for settlement as in the first. After this I believe not a particle of tin or lead would be found in the waste, and that it would put an end to the Red River dressers the waste, and that it would put an end to the Red River dressers and the waste of fine lead now being carried into the sea by many a mine in this county. I do not doubt if this should meet the eye of some of the following gentlemen that one or more of them might be tempted to give it a trial, and, if so, I am confident they be amply rewarded. I would mention Captain Southey for lead, and Captain Teague, Captain Tregay, and Captain J. Thomas for tin. The space pointed out would be sufficient for the specific gravity of the ores of lead and tin to disencumber them from the much lighter waste associated with them. ABSALOM FRANCIS. Goginan, March 6.

SEPARATION OF MINERALS.

Sir.—Your correspondent, "R. A. V.," in last week's Mining Journal refers to the separation of lead, blende, copper, and mundic by water as commercially practical by the use of Rittinger's Percussion Table, and there can be no doubt that with minerals of certain kinds "R. A. V." is quite correct. But for success to be achieved the slovenly system almost universal in Cornwall must be abandoned, and an intelligent and careful method substituted. Many German mines pay good profits with poorer and more troublesome ore, and with fewer facilities for working, than exist in Cornish mines, which ratin all connected with them. Batthe untidy dressing-floors, the waste of water and mineral, and the general absence of discipline observable at all Cornish mines are unknown in Germany so that although the German deep not no cavill part, which that although the German d. many, so that although the German does not, nor could not, work half so hard as the Cornishman, he gets better results from similar materials. The secret of dressing mixed ores of lead and blende, or of copper and mundic, is to carefully size the ore and to reduce as little as possible to too fine a powder. For lead and blende mixtures the best sizes are from that of a grain of rape seed to that of tures the best sizes are from that of a grain of rape seed to that of rice; sometimes as large as peas can be used with advantage; and the dresser should never be afraid of working the same ore twice when time can be saved thereby. I have seen lead and blende so awkwardly mixed that it would alarm a Cornishman separated with good profit, and with nothing but old Saxon jiggers, which cost scarcely 1l. each to make.

The ore was separated into peas, rice, rape, and sand, the production of powder being almost entirely avoided by the method of crushing. Each class was, of course, treated separately and slowly, the men working what to an Englishman appeared quite lazily. Taking a couple of shovelfuls of the rice size, for example, they were spread carefully over the sieve as smoothly as though the man had

raking a couple of shovelfuls of the rice size, for example, they were spread carefully over the sieve as smoothly as though the man had been measuring corn. The band was then shifted, and perhaps a dozen strokes of water forced through and the band thrown off again. The one was then scraped off in three portions, the first being nearly pure blende, the second a mixture requiring re-treatment, and the last nearly pure lead. Both the lead and the blende

were quite pure enough for market, and the curious point to an Englishman was the comparatively large proportion he passed for re-treatment. The one man was attending to three jiggers, the two outer ones being used for fresh ore and the middle for re-treatment. Although he moved so leisurely it was astonishing to see how large a quantity of stuff he got through in the day, and how completely the separation was effected. I ascertained that the ore was imported, and as the miners—Cornishmen and Americans—who proported, and as the miners—commune and obtained at a very duced it could do nothing with it, it was obtained at a very duced it could do nothing with it, it was obtained at a very price, so that the dressing gave a profit of nearly 51. 10s. per ton after paying every charge. I admit that there are many undressable mixtures produced, but I believe that much that is now thrown aside could be treated with the same amount of profit as mentioned here, and this would be a great boon to many Cornish mines. I have not seen any attempts to separate copper and mundic at the same places, so that I can say nothing about that.

Commerce.

March 5

SEPARATION OF MINERALS.

SIB,—Allow me to inform "R. A. V." that someone has made a great mistake respecting what I said of the separation of the four minerals. The remark I made was—the greatest difficulty we have to contend with is the separation of lead, blende, copper, and mundic, especially the three after the first has been extracted, not but what it can be done to a very great extent, positive proof of which is the fact of our doing it here to the tune of several thousands of tons every year. I am always open to conviction, in order to make any improvement possible, and am obliged to "R. A. V." for his information respecting Rittinger's percussion frame, but so far as my little experience goes in dressing I prefer the jiggers.

Truro, March 7.

RICHARD SOUTHEY.

BLAKELY HALL COLLIERIES. -Will any correspondent kindly inform me what has been SIR,—Will any correspondent kindly inform me what has been done with this expensive property, valued at 220,000l, by eminent engineers, and on which was raised 100,000l, on debentures, assigned to trustees of high reputation. No answer can be procured from trustees, directors, or vendor what has become of the money subscribed by the debenture holders. I am told the collieries have been sold for 17,200l, but can scarcely believe any engineer would estimate the value of a colliery at any time at 220,000l, and allow it to be sold for 17,200l.—March 7.

WEST CHIVERTON, AND NEW MACHINERY.

SIR,—In reply to "Spectator's" remarks in the Journal of Saturday last, allow me to say that the principle—more fully developed and successfully carried out at our new crusher and dressing-floors—was adopted by us long before my visit to Wales, and nothing I saw there would cause me to infringe on the legally protected rights of the Patent Mineral Dressing Machinery Company. In fact, shoul any of their agents deem a visit to the mine worth while no on would be more quickly convinced of the fallacy of "Spectator's In fact, should insinuations than themselves, and nothing would give me greater pleasure than to meet them here.

RICHARD SOUTHEY. pleasure than to meet them here.

Truro, March 7.

SILVER IN THE CALLINGTON DISTRICT.

-The constant startling reports (all apparently emanating from the same source) of vast discoveries of copper, tin, and other products in this district, and now culminating in a silver mine, are becoming strikingly remarkable. It may seem hard to distant readers that anything should be said or written that might have a tendency to dispel the charm of the present El Dorado, but as an old inhabitant of the neighbourhood one can scarcely forget the furore caused years ago by similar reports from Wheal Brothers, the sudden callague of that enterprise and the fallen salendour, of the sudden collapse of that enterprise, and the fallen splendour of the promoter thereof. "Callingtonian" will do no harm to bear in mind this stirring episode, and the time is come when it should also be more widely known that so many mis-deals have occurred in the turning up of trumps in this locality that steady observers have but little faith in the success of this hazardous kind of game.

March 7.

A LOOKER-ON.

PRINCE ROYAL MINING COMPANY.

PRINCE ROYAL MINING COMPANY.

SIR,—In the Journal of Feb. 24 there is an advertisement of a condensed prospectus of Prince Royal Mine; capital 20,000l., &c. It says, "The company is formed to acquire and work the Prince Royal Tin, Copper, and Lead Mine." "The company acquire the mine (including the plant and loose stock) for 6000l., being the sum actually expended upon it." I beg leave to ask the promoters who expended that sum upon the mine? Certainly not they. It may be that ancient workers expended money upon the works, and that the promoters wish to take credit for that, making the public, if nossible, to believe that they themselves expended it. I beg also to sible, to believe that they themselves expended it. I beg also to the promoters to state of what the "loose stock" on the mine consists, and what they estimate the value thereof?

Perranporth, March 7.

CARDIGANSHIRE MINES, A.D. 1877.-No. VI.

Str.—Beginning our remarks with the LLETTY EVAN HEN, now the Vaughan Mine. During the past three years, and for very many years previously, a deep adit level from the western portion of the sett has been driven in a very long distance on the course of one of the largest lodes in this county. I have seen it cross-cutted for 20 fms, from north to south without reaching the south wall. A this distance has been too shallow for this vein where so wide to produce ore, and, if found, it will be found at a much greater depth than the present adit. One of the objects in driving this adit, in addition to proving the lode westward, was for the purpose of unaddition to proving the lode westward, was for the purpose of un watering the eastern workings, from which considerable quantitie of lead ore have been worked away. This has been accomplished so that the machinery used in pumping, &c., may now be put t sink the mine under the present deep level. From the point where the lead ore has been obtained the great vein splits into branches the north one making some very fair courses of ore, but the branche must become more productive than when I last saw them to yield any profits on working them, and my opinion of the ground eastward of the present works is that until the present branches again unite the ground will be found to be non-productive of sufficient bodies of ore to realise profits. The great chances of finding a rich mine

re westward in depth. on the same lode, to the west of the deep adit, is LLECHWEDD-HALEG, where nothing has been done for the last three years. Still further west is the BRONFLOYD MINE, being the deepest mine wrought under the sea level in Cardiganshire. If any proof were wanting as to the veins holding down to a greater depth, at all events, than any of the mines that have as yet been worked in this events, than any of the innes that have as yet been worked in this county, we have an instance of it here. The lode in the bottom is both of the usual width and richness as in the upper levels, another instance, if any were wanted, of the permanent character of the lead mines in this great district, extending through Cardigan shire, Montgomeryshire, and Radnorshire. The mine is now in a fair state of working, and from this time forward good profits may be relied on. To the next wand at West Breatherd and also at be relied on. To the westward at West Bronfloyd, and also at North Bronfloyd, nothing has been done since 1874, and, consequently, nothing can be said of them. We will next offer a few remarks on the GREAT WIST VAN, which is supposed to be on the Van lode, and is closely bordering on Montgomeryshire. The lode is of great width, and contains about lead ore enough to pay the expense of working. It has been worked from hand to mouth for pense of working. It has been worked from hand to mouth for many years past. From a meeting, recently held in London, of the shareholders, it is to be hoped that the company have seen the folly of such proceedings, and that they will now work it in a fair and miner-like manner, as it deserves. If a moderate quantity of re-serves were laid open, leaving all the ore discovered to be worked away to the best advantage, the shareholders will be amply re-warded for the outlay necessary to accomplish this desired end. The capital proposed to be raised to do this—5000/.—is more than ample for all purposes, and I shall be much surprised if the Great West Van does not make a lasting dividend-paying mine. Want of capital is greatly felt for the proper development of minesing county, and many a mine that could be made lastingly profitted is kept back from the same causes as this property has been as the calf in the cow's belly—and I shall take care to note them as I proceed with my remarks.

ABSALOM FRANCE Contract Manual 6. em as I proceed with my remark Goginan, Aberystwith, March 6. ABSALOM FRAN

LEAD MINING IN WALES.

Sir,—I have been in the habit of visiting for the last few years. SIR,—I have been in the habit of visiting for the last few years opinion as to their capabilities. You hear week by week of the famous things they are going to do; of the spots of lead appears in this level and that level; of the great improvement of the ground which is going to lead to something really good; of the various total and the productive winzes; but we want to hear of dividends and the productive winzes; but we want to hear of dividends and the productive winzes; but we want to hear of dividends for it determined to see for myself, and ascertain if possible if must this was not glamour and moonshire that these mining agents we from week to week palming upon the too credulous public, or a facts; and I have come to the conclusion that too many of these ticing reports are not to be relied upon, and that some of them seen concected with the one object of hoodwinking and leading a the unwary people who know nothing at all about mining. Its their me, however, that offshoots or continuations of the Van leading a greatest and most productive in the world, would have something me, however, that offshoots or continuations of the Van lode, greatest and most productive in the world, would have something disclose; and I paid several visits to the mines in the vicinity, escially to the Van Console, I was staggered every time I went the at the promising appearance of all that I saw, and yet I was me disappointed than amazed at the poor, miserably poor, way in which this mine was being handled. The ore is there in lodes of 6 toms the fathom; the dressing machinery is there in perfection; the espenomical water power is there in superabundance; nowhere is the better or greater. Nothing is wanting, yet this property is manipulated so as to give neither "seed to the sower nor bread to the eath and the shareholders have every reason to say "Save me from: and the shareholders have every reason to say "Save me from my friends;" but the day will come, and may not be far distant, wheath true value of this mine will burst upon their apathetic minds my true backward game will no longer succeed or be permitted. Then is another young mine, the Glyn, lying on the hill side also onto Van lode, but that it an incipient thing, and will require much nursing, much money, and much time to develope; it is rich, but quite devoid of all the nature facilities of its very facilities of its very facilities. quite devoid of all the natural facilities of its more fortunate neigh bour. There is also the Aberdaunant further off still, but yet on a same rich lode, which will also by perseverance and tact take its pla amongst the celebrated mines of Montgomeryshire. Not yet, ho ever, for there is a deal to be done, but money and judicious ment will do it.—Liverpool, March 8.

WEST CORK MINES, IRELAND.

SIR.—It occurs to me that the present depressed state of mining would be the right time for hone fide capitalists to secure miner properties for legitimate mining; and to those who are so dispose I could introduce copper mines of undoubted value, and also a mis producing an article of great purity and extensively used man and manufactures, all of which in a short time would pay had W. THOMAS, some profits on the capital invested. Cappagh Mine, Ballydehob, County Cork, March 6.

VAN CONSOLS MINE.

SIR,—The prospects and the present price of Van Consols dout harmonise. East Van (without lead) stands at a price varying from 91, to 101, and has touched (say) 241. The late opening on the mass of ore in Van Consols, worth 802, per fathom, and in some para worth upwards of that amount, together with a lode in width the extent of 40 ft., and proved to be a continuous course of one hows that this mine is about, and is already, a second Van Mine The fact of 2000/, worth of ore having been taken out of a mere small The fact of 2000, worth of ore having been taken out of a meresmal hole in the lode shows what sort of wealth is at hand—only a sample, in fact. These shares have seen 10%, when nothing really permanent had been found. By latest reports a great properly wealth is open to investors at a mere song of its intrinsic word. The hasty and numerous purchases lately made show that there is no doubt that the public are in partaware of the great change which has come, so long and earnestly, however, expected. A week hem will dispel (if any) all doubts. Very little ground has been take away from any part of the lode at Murray's shaft, east or west, the main bodies of ore in the 15, 25, and 40 fm, levels remain untoubted. The character of the lode is identical with the Van—very darkar gillaceous matrix. Specimens of lead brought from the mineshow the great value of the enormous deposits now laid open. To the westward 500% worth of ore was taken from a winze alone, without distinct the level is now that the contraction of the contract driving the levels in any direction. Great yields of ore are, then fore, anticipated, and early large dividends must now result.

NORTH LAXEY MINE.

Sir.—May I ask, through the Journal, a question respecting the above mine? In a report sent round to the shareholders in September last Capt. Rowe says: "Discoveries in the St north, sad as I expect, will necessitate a provision (of capital) in order to realise them." As far as I remember, no reference has been make since that time to the 84. I should like to ask if operations are being carried on in that part of the mine, seeing so much stress wall aid upon it in the report referred to?

March 7.

A COUNTRY SHAREHOLDER,

PEDN-AN-DREA MINES, AND MR. GRANVILLE SHARP. SIR,—Men take different views of the same object according to their different positions with regard to that object. Mr. Grantill Sharp expressed a strong opinion that the shareholders of these mines had been cruelly deceived, if not robbed, which according to my view might have been called offensive language. Instead of my view might have been called offensive language. Instead of penning an offensive letter, however, in return. I gave a strong amy penning an offensive letter, however, in return, a good Mr. Grandle of facts which quite proved the untenableness of Mr. Grandle Sharp's assumed position, and this he calls writing in an offensite tone. Mr. Grandle Sharp says that he is not possessed of the fall tone. Mr. Grandle him to test the validity of the groundwark is hand. information to enable him to test the validity of the gron which my statements are based. Well, that being so, destitute of all notions of propriety if he fancies that h right to question those statements which he admits that he assisted test? Mr. Granville Sharp says that he has, however, sources in view through which to obtain a lequate information. If this bea, why did he not obtain this "adequate information" before having made his reckless and unjustifiable attack. My former letter on this subject pointed out all the facts of the case necessary in my reply to the present very modest demand of this self-appointed judged in a proceedings; and if he dishblickers prove structure twith the life of the case in the case and if he dishelieves seed as he says "of the full information to enable him to test statements, of what use would be my replying categorically to resent rambling or the statements. possessed as no those statements, his present rambling questions. An extract from a letter received by me from the largest shareholder in the old company, who, so every other shareholder who chose to enquire, knew all about the every other shareholder who chose to enquire, knew all about the business will, I think, be quite sufficient reply to all and every attack which can be made by Mr. Granville Sharp or any other caviller. My friend writes as follows:—
Capt. Tregay, Redruth.—I have noticed in the Mining Journal your excellent reply to Mr. Granville Sharp. You are quite right, those who know you have all confidence in you.—Wm. JARDINE: London, Feb. 26.

Now, I would like to know what Mr. Granville Sharp may have to say to me after that, for it strikes me there can be no other course open to him but to withdraw his remarks, and to offer me an ample

open to him but to withdraw his remarks, and to offer me an ample apology. With regard to my having lost over 100,000% in the mines, that is not strictly accurate; that that amount of money has been laid out on the mines (some of it before I came here) is undoubtedly true, but then the mines may be, and probably are, worth quite that money now, consequently it has not been lost. Mr. Granville Sharp's last paragraph I ought not find fault with, as he gives me credit for greater ability they. Turning tin into greater ability than I ever dreamt of possessing. Turning tin into Great gold, however, ought not to be so very difficult an operation as to Want puzzle so astute a man; the doing what so many modern alchemists

MARCH 10 are daily achievin

Str.—Your corr der the above h nder the accovered to the lode discovered to the ton; this is ear the love the top it this is a that Mr. Barnard and his a that Mr. Barnard Lady Mine; and authority, I should be seen a short to the seen and the see ertainly no lack It would be th arn out a succe ies, and for the pass.—March

SIR.-When th that part of it we sent down an as instruction. an has been in is engagement stant-survey he, "when we v man coming w hind,' which I taking angles, o walk away from it known that h rence to meet a that surveyor vingers in the that shopkeepe ss, but take Feb. 28.

Sir,-Allow whose letter w sume is the cor had given us than the direct being admitted more or less by holder, and th prove my prop spired shareho written depre the mine has diminished—t two. I reiter surdity for a s concern like remark applies imilar positi are the very for I think I may current year t has been divi In my com letter of the i think, Feb. 2 instant infor

> we apparent Mansell resp lying upon t friends," in monly witty that in his no March 7. WATER-R. paratus has onsists of a valves. The said valves l

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means of tu pipes and v be raised. correspondi means of th into the ra named valv chamber, w der and the mediately distance, b case and a and united MACHIN driving be

> gutta-perc width, and posed in a ture of th the water of interposed g the case may mounted the webbings are a single stretche heater, fout. Between receive their from elongs the heater. From the heater exudation c a cooling ta cooling to a cooling ta finally is fe or more we any suitable cess the gue the band of

Paris, cons

The Per Caird and tons regi over 200 are daily achieving, turning bags of wind into gold, is what fairly W. TREGAY.

BARNARDIAN RHAPSODIES.

BARNARDIAN RHAPSODIES.

Sm.—Your correspondent, "Callingtonian," of last week, writing under the above heading, is within the margin when he says that the lode discovered at the Queen Mine assays 1000 ozs. of silver to the lode discovered at the Queen Mine assays 1000 ozs. of silver to the ton; this is certainly bearing out all that has been said by Mr. Barnard and his agent, Capt. W. Knott, in the past. Rumour says that Mr. Barnard is making arrangements to re-work the Virtuous Lady Mine; and although, perhaps, I may not be a strictly reliable authority, I should say this is the very property for his new processes, as I have known six men break 1000. Worth of rich ore in a cases, as I have known six men break 1000. Worth of rich ore in a fer month; and, on the other hand, I have seen the mine go on month after month re-urning nothing, yet with a lode 100 ft. wide, spotted mouth; and, on the other hand, I have seen the mine go on month fiter month re-arning nothing, yet with a lode 100 ft. wide, spotted more or less with copper, and said to contain 7 ozs. of silver and dwts. of gold per ton, Mr. Barnard, if his patents are really worth 3 dwts. of gold per ton, Mr. Barnard, if his patents are really worth anything, ought by handling 50 tons per day to turn out the precious metals in large quartities. It is now more than 30 years ago I beard a noted mining man say that the Virtuous Lady should be worked as an open quarry, so as to secure the rich ore which runs in layers, and if all the lode will do 7 ozs. of silver to the ton there is existing the lode of stuff.

age's, and if all the lode will do I ozs. of sittle age's, and if all the lode will do I ozs. of sittle age's, and if all the lode will do I ozs. of sittle age's, and lock of suff.

It would be the making of Tavistock for this extensive mine to I two look of the sake of "One and All" I heartily wish it may come its, and for the sake of "One and All" I heartily wish it may come Tavistockian.

ASHAMED OF HIS PROFESSION.

Sir,-When the Cornwall Railway Company resolved to execute Sin.—When the Cornwall Railway Company resolved to execute that part of it which lies between Triro and Falmouth the engineer sent down an assistant to lay out the curves, &c., preparatory to construction. The man who assisted him in the capticity of chainman has been in my employ very frequently, both before and after his engagement on the Cornwall Railway. He told me that that assistant-surveyor was the proudest man he ever saw. "If," said he, "when we were walking on the road togethe he saw a gentleman coming who knew him, he would say to me, 'you walk behind,' which I did; and when engaged with his theodolite in taking angles, or with a levelling instrument, in a like case he would walk away from the instrument, being ashamed, apparently, to have taking angles, of the instrument, being ashamed, apparently, to have it known that he was a surveyor." It is not a very common occurrence to meet a man who is ashamed of his calling or profession, as rence to meet a hand who is assumed of his calling or profession, as that surveyor apparently was. I see the razor-grinders and scaringers in the streets looking very happy in their businesses, and that shopkeepers in general are not only not ashamed of their business, but take a pride in it. The aforesaid surveyor is, I believe, off life's stage. I would hope that before his exit he learned humility.

RICHMOND MINING COMPANY.

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whose letter was inserted in your correspondent, "A Shareholder," whose letter was inserted in your Journal of last week, who I presame is the correspondent I alluded to in a former letter as one who had given us much fuller information respecting the Eureka suit than the directors, and as one who evidently had the privilege of being admitted behind the scenes, and therefore, I presume, inspired more or less by the Richmond powers, that I am a hour, fide share. han the directors, and as one who evidently may the privilege of being admitted behind the scenes, and therefore, I presume, itspired more or less by the Richmond powers, that I am a bona fide shareholder, and that my letters have been dictated by the wish to improve my property in the mine. And, further, I challenge this inspired shareholder to point out one word in the letters I have written deprecatory of the mine itself. In fact, my confidence in the mine has increased, while my confidence in the directors has diminished—that is, it has gone in adverse directions between the two. I reiterate what I stated in my first letter, that it is an absurdity for a set of directors to pretend to manage a complicated concern like this, situate on the other side of the Atlantic. This remark applies not only to the Richmond but to fother mines in a similar position. My reasons for increased confidence in the mine are the very favourable opening out of the mine, and the large, and I think I may say increasing, output of ore. I believe during the current year the ore which has been smelted has been at the rate of at least 600,000, per annum, of which large sum about 20,000, only has been divided among the shareholders.

In my communication of last week I referred our directors to the letter of the manager of the St. John del Rey, in the Times of, I think, Feb. 21, as an example for them to follow in communicating instant information to the shareholders of every change in the cirrent research research and when he was the man.

instant information to the shareholders of every change in the circumstances of the mine, whether good or bad. We have now been cumstances of the mine, whether good or bad. We have now been seven weeks since the issue of the circular respecting the suit with the Eureka Company without one morsel of information, nor should we apparently have had even that but for the circular of Mesers, Mansell respecting the Eureka claim. Now, I think, instead of relying upon the effect of that very stale phrase "Save me from my friends," in quoting which some people think themselves uncommonly witty, "A Sharehelder" had endeavoured to controvert my facts and reasoning he would have done much better, but I hope that in his way, communication he will at least much the attempt. that in his next communication he will at least make the attempt. COMMON SENSE

WATER-RAISING APPARATUS.—An improved water-raising apparatus has been invented by Mr. O. GLEISLE, of Pforzheim, which consists of a case containing two cylinders, each containing two valves. These valves are fixed in trunks of pipes. Some of the said valves lead outward, whilst others unite the cylinders with the sair chambers. On the said case or box rest two blowers, which by means of tubes are in combination with the cylinders, and through pipes and valves are in combination with the outer atmosphere. The said case is placed in the reservoir from which the water is to be raised. If by the blower the air is pressed on the water is the corresponding cylinder one valve is closed, and the water is by means of the other valve forced into the air chamber, and therefrom into the raising tube. If the pressure ceases the second or last-named valve prevents the return of the water contained in the air chamber, whilst the blower ascends in order to draw a new quantity of air through the pipe; the first-named valve is opened by the pressure of the outer water for admitting the latter into the cylinder, and the action is repeated. The blower need not be placed immediately on the casing, but may be removed from the latter to any distance, both parts being then united by pipes or hose. The air case and ascending pipe may also be removed from the cylinder, and united therewith by pipes or hose.

MACHINE DRIVING BELUS.—The essential feature of the new driving halt invariate by Mr. B. MACHINE DRIVING BELUS.—The essential feature of the new driving halt invariate by Mr. Machine Driving Belus and Scient Dreive.

MACHINE DRIVING BELTS .- The essential feature of the new driving belt invented by Mr. David Levy, of Boule and Saint Denis, Paris, consists in the combination of strong webbings or bands with gutta-percha. These webbings are woven in length of the required width, and then laid togother and cemented by gutta-percha, inter-posed in a warm state. The apparatus that he employs in the manuposed in a warm state. facture of these driving belts metal or material, heated b posed in a warm state. The apparatus that he employs in the manuscular of these driving helts consists of a heater or boiler, of iron or other suitable metal or material, heated by het diquid or steam, the lower portion of the said beater being a water and steam tight receptacle, fitted with a pipe for the supply of the heated liquid or steam, and with a cook for drawing off the cooled liquid or the water of condensation. The webbings which are brought together with the histoposed gutta percha to form the bands are drawn from reels, two or more, as the case may be, and pass through the cover of the heater between guide rollers mounted therein, and thence to and under strecher rollers, by which the said webbings are temporarily kept apart, but are brought together on passing under a single strecher roller, mounted across the aperture, or all in the upper part of the leater, from which aperture or slit the combined and cemented webbings pass out. Between the first stretching rollers and exit stretching roller the webbings receive their coating of gutta-percha, which is fed between the successive webbings receive their coating of gutta-percha, which is fed between the successive webbings receive their coating of gutta-percha tubes supplied from a trough on the side of the heater. Immediately on the passage of the combined webbings and gutta-percha from the heater, the bond thus formed is seized between two pressing rollers, which completes the band, and at the same time the bead or edge formed by the lateral avadation of the gutta percha is removed, and the band is passed over rollers across a cooling table, and is again pressed by a second pair of pressure cylinders, and faulty is fed to and rolled upon a real ready for use. There may be employed one or more webbings, which may be of hemp, twisted or not, and generally if all or any suitable textile material, and it will be seen that by the above-desorthed process the gutta-percha will penetrate the interstices of the webbing, and thus form the band of compactly

The Peninsular and Oriental Company have contracted with Messrs. Caird and Co., of Greenock, for the construction of a steamer of 4200 tons register, with engines of 700-horse (nominal) power, to carry over 200 passengers and a large cargo.

Aleetings of Public Companies.

MARBELLA IRON ORE COMPANY.

Leaving a credit balance to carry forward to the present year of £ 253 12 7. The retiring directors are Mesers. William Scott and William Smith, both of hom being eligible offer themselves for re-election.—WILLIAM SCOTT, Chairman, DIN BROADPOOT, Manager.

The CHAIRMAN: Gentlemen, during the past year the directors have had to encounter difficulties of a more than usually anxious character. The fron trade has not participated in the general im-provement of business. Pig-iron has fallen 6s.3d. per ton, the price on Dec. 24, 1876, being 58s. 3d., against 64s. 6d. the same time in

the previous year. When this company was formed the price was 72s. 3d. per ton.

Our sales of ore have not been very large, and we are, therefore. in a position, with the large stock on hand and our facilities for increased output, to take advantage of any improvement which

may take place.

The "M. Moxham" case, arising from an accident to the pier on
After anxious and tedious may take place.

The "M. Moxham" case, arising from an accident to the pier on the 5th of October, 1874, is now closed. After anxious and tedious negociations a settlement was arrived at by payment by the defendants of 17,000% and all law expenses. It will be observed that the suspense account has now been closed, and the cost of developing the mine, amounting during the year to a considerable sum, has, as in the previous year, been placed to the debit of revenue account. The ore on hand is valued at the price of the day. In edirectors, having settled the law cases, with one trifling exception and other disagreeable business on hand when they took office, thought it highly advisable to visit Marbella, with a view of inspecting the company's property there. Three of them, there ore, left this country for that purpose about the beginning of last month, and I am happy in being able to inform you that they found the mine, works, railway and rolling stock in fair order and good condition. The pier is decidedly stronger than ever it was, and well warrants the addition made to capital account. The wooking of the mine is being carefully attended to by Mr. Walton. The directors are convinced that the visit to Marbella will be productive of good to the company in various ways. With these few remarks I beg to move the adoption of the report and accounts.

Mr. P. W. Spence: I beg to second the motion.

The resolution was carried.

It was then unanimously resolved, on the motion of the Charrman, seconded by Mr. J. Russell Clipperton, that a dividend be declared of 3s. per share, payable on or after the 16th inst.

The re-election of Messrs. William Scott and William Smith, both of Glasgow, was moved by Mr. JAMES DOWNIE, seconded by Mr. H. C. Scott, and carried unarimously.

of Glasgow, was moved by Mr. James Downie, seconded by Mr. H. C. Scott, and carried unarimously.

Mr. CLIPPERTON moved that Messrs. Turquand, Youngs, and Co. be re-elected auditors, at the same remuneration as last year—311. 10s. This was seconded by Mr. W. F. Woods, and agreed to.

A vote of thanks to the Chairman closed the proceedings.

ANTIOQUIA (FRONTINO) MINING COMPANY.

The ordinary meeting of shareholders was held at the offices of the company, Gresham House, on Monday, Mr. Thomas Eyre Foakes in the chair.

Mr. THOMAS EYRE FOAKES in the chair.

Mr. J. JAMESON TRURAN (the secretary) read the minutes of the previous meeting, which were then confirmed.

The CHARMAN said he was sorry the directors had not a better account to give of the state of affairs. So far as the mine was conaccount to give of the state of affairs. So far as the mine was concerned he believed it was just as good as when they first went into the undertaking, but unfortugately from about four or five months ago, from the end of July, the directors had not received any advices except short notes from the mine, but those short notes were satisfactory for this reason—that they stated the mines were going on very well, and that the Escobar and Carmen were in a very satisfactory state, and improved your much. A revolution had taken factory state, and improved very much. A revolution had taken place between the Conservatives and Liberals as to who should have the control of the State, and the company had lost a considerable number of menfrom the mine. Although the works had not been exactly stopped, yet they had not gone on with the same speed as they otherwise would have done, but the Prefect of the Territory had arranged that no more men should be taken from the mine, so that he did not anticipate that it had been exactly stopped. Of course, it was unsatisfactory not to have advices up to the date when they usually had them. To-day it was really almost impossible to tell the shareholders more than this—that the mines at the time of the last advices were going on very well, and there were great hopes entertained that the revolution would soon come to an end. Before the present meeting the directors had made enquiries from every possible source, in order to obtain information which would enable the directors to tell the shareholders something more about the mines, but the agents in London of the bankers abroad knew nothing; in fact, no one in England seemed to knew anything about what experts going no one in England seemed to know anything about what was going on there, except the extractin last week's Mining Journal from the Panama Star, stating that there had been a great fight between our two combatting parties, about 6000 men being engaged on both sides; but a distance of about 200 miles intervened between the mines and the place where the fighting took place. From the different reports which he had seen he did not articipate that the course ferent reports which he had seen he did not anticipate that the company's property had been at all affected beyond some of the company's men having been taken away to serve as soldiers. There was one very consolitary circumstance which the shareholders must bear in mind—the present contest in that country was not like an invasion by a foreign foe. This was simply a struggle between two parties in the country, each interested in the State where the fighting was in the country, each interested in the State where the fighting was taking place, so that whichever side conquered the object of the victors would be to take care that those people who produced revenue by working mines were protected, so that it did not signify to this company whether the Conservatives or the Liberals gained the day. There was another circumstance to which he would call attention. They would see by the report that the company during the lastsix months had lost a sum of 1568. 19s. 10d., which was the loss for the 12 months ending April, 1876. The loss on the first year was 351. 14s. 6d., so that the loss last year showed a considerable increase; but, as mentioned in the propor, that really arose from the crease; but, as mentioned in the report, that really arose from the circumstance of their having met in the Escobar lode a cross course which was a disadvantage itself, but which, on the other hand, had proved useful, inasmuch as it showed that the Carmen lode, which to was thought was worked out for 270 fathoms, was not in reality to worked out, and remained, as regarded an important branch, still untouched. Therefore, although the cross-course stopped operations for a time, still it had this advantage—that it showed that the

Carmen lode was still a valuable lode The directors had postponed holding the meeting until the last moment, hoping from month to month and from week to week to have advices from the mine, so that they would have been able to have told the shareholders more that they would have been able to have told the shareholders more than they were able to tell them to-day. The report was not sent out till the last moment, in the hope that the mail at the beginning of the month would have brought advices, but such had not been the case. The bankers out there were very respectable people, and it was probable that they had money for this company, as well as for the Frontino Company, waiting for the time when it could be safely transmitted to this country. He believed that when the next advices arrived the mine would be found to be in a prosperous condition. That was simply his opinion, and he had no right to state it as a fact.

dition. That was simply his opinion, and he had no right to state it as a fact.

A SHAREHOLDER said he thought one or two other companies had received advices from the district.

The CHAIRMAN said the Malabar and also the Malpaso had received advices, but a large tract of country intervened between those properties and the mines belonging to this company, and that tract of land might possibly be in the hands of hostic parties. Again, the two properties mentioned above were better situated for the transmission of news. The directors had made every effort by applying to the leading merchants in London to obtain information, but none of them seemed to have received advices, and he himself was about to apply to the Foreign Office to-morrow in order to ascertain if any advices had been received there. Most of the sharcholders in this company were also sharcholders in the Frontino and Bolivia Company, and he might mention that as soon as they got any reliable intelligence a meeting of the Frontino Company were also sharcholders in the thought there ought now to be in the hands of the bankers a large accumulation of gold on account of the Frontino Company, and also a considerable amount on account of the Frontino Company, and so a considerable amount on account of this company. No gold had ever been lost owing to any revolution, although an amount on was once stolen in transit. Referring to the item of 'Saudry creditors, 31874," he said the greater part of that was due to the Frontino and Bolivia Company, and if the remittances to which he had referred did not come forward the directors would probably raise an amount on debentures to pay off that debt, which would also enable the Frontino Company to pay a small dividend. The directors had the power to raise the money, but they did not wish to do so without consulting the shareholders and receiving their approval, and although no formal resolution could be passed at the present meeting, the directors would be glad to hear an informal expression of opinion on the part o

GREAT WHEAL ELEANOR MINING COMPANY.

The adjourned annual general meeting of shareholders was held at the Queen's Hotel, Exeter, Mr. E. DIPSTALE, chairman of the board of directors, presiding. There was a large attendance of share-rolders. At a meeting held a month since the directors, in presentboard of directors, presiding. There was a large attendance of sharerolders. At a meeting held a month since the directors, in presenting their report, regretted that the expenditure of profitable workings had not during the past year been realised. Three small parcels
of tin had been sold, but the stones being brought to the surface
were not of sufficient value to pay the cost of stamping and dressing. Acting,
however, on the advice of Messrs. R. Goldsworthy, W. H. Hosking, and W. Henwood, who had inspected the mine, and who concurred generally that operations
should be directed to driving the 20 fm. level further west, and sinking 10 fathoms
deeper, the directors recommended the shareholders to support them in carrying
on the works as indicated. Dissatisfaction was, however, expressed by some few
shareholders at the management of the mine, and on the consent of the directors
a committee was appointed, with power to call in another engineer, and to report
on the present condition of the mine, and on the advisability of proceeding with
the works. This committee presented its report, but no act on was taken respecting it. The committee considered that the engine and machinery erected should
not have been provided until the mine had been further proved. The report of
Mr. Kendall, whom the committee had called in, coincided in a great measure in
its recommendations with the reports of their inspectors, and Captain Josiah
Thomas, who also made an inspection of the mine last week, likewise recommended that attention should for the present be confined to the lode on which the
20 fm. level had been driven, "as this lode was most extensively worked on by the
arceients, and held out the best prospects of success. The workings (he added),
therefore, are very shallow, and the lode is scarcely settled, and can hardly be expected to be productive until greater depth is reached. The lode chiefly worked
upon is worth 33 lbs. to in to the ton."

After the reading of Captain Thomas's report it was unanimously rece

BEDFORD UNITED MINING COMPANY.

A general meeting of shareholders was held at the company's offices, St. Andrew's House, Cornhill, on Wednesday,
Mr. C. BAILEY in the chair.

Mr. C. Balley in the chair.

Mr. T. B. Laws (the secretary) read the notice convening the meeting, and the minutes of the ordinary and special meetings in November. The statement of accounts for the 20 weeks ending Jan. 27 was submitted, showing a balance in hand of 2812. 19s. 5d., and an estimated balance of liabilities over assets of 3414. 1s. 6d. (not 34,1162, as stated by a typographical error in the Mine Share Market report in last week's Mining Journal). A very encouraging report from Capts. Doidge and Phillips, the agents, was also read: and nn estimated balance of liabilities over assets of 3414.18, 6d, (not 34,116), as stated by a typographical error in the Mine Share Market report in last week's Mining Journal). A very encouraging report from Capts, Doidge and Phillips, the agents, was also read:—Mark 6.—We beg leave to hand you the following report on the state and prospects of this mine, together with particulars of ground explored in the four months ending February 24 last:—The engine-shaft has been sunk 3 fms. 1ft, below the 127, trips and cistern plats cut, the leat fixed, and everything put in order for sinking without interruption. The 127 has been extended east 5 fms. 4 ft. 3 in.: west, 6 fms. 4 ft. 3 in. The 115 has been extended east 5 fms. 4 ft. 3 in.: west, 7 fms. 3 in., and a winze sunk in the 115 east 5 fms. 1 ft. The 103 has been extended east 4 fms. 4 ft.; west, 6 fms. 2 ft., and the 147 east on the south lode 2 fms. 4 ft. 9 in., making a total of 50 fms. 3 ft. 4 in. The lode in the 127 east has been productive for the distance driven, varying in value from 201. 71, and is at present at the lower value. The ode in the level west has improved, having for some distance been worth 181, per fathom, and is still of the same value. The lode in the 115 east has been productive for rearly the whole of the divage, varying in value from 251, 201, and 165, per fathom, and is still of the same value. The lode in the 115 east has been productive for the divage, varying in value from 251, 201, and 165, per fathom, and is at present worth 181 l82, per fathom. The whize in the bottom of this level is down within a few feet of the 127, but is suspended on account of water. The 127 is being pushed on by six men to communicate with this winze as quick as possible, when the ground laid open will be available for stoping. In the 103 east the lode has visided good stones of ore, but nothing to value from saving work up to 121, per fathom, but is at present small and poor. As this level is considerably in advanced and in the 103 east, which are wor

The SERREARS and that everyone had had the lottee, and had very opportunity to pay the ealis before the shares were absolutely forfeited. — Mr. McCallax added that there were 213 forfeited shares at present in the bands of the committee. The CHARRAN said that at the last meeting he put it very strongly that it was very desirable that all bills should be brought up as close as possible. He believed that the 2s. 6d. call already made, and that which they would make to-day, would put them in a good position. They were now buying coal, can'les, and all other materials in the best market, and the prices of the last few months showed a considerable difference as compared with what they paid eight or nine mouths ago. The SECRETARY said that the cost-sheet, me chants' bills, and all other worchers were upon the table. He was at the mine on Thirsday last, and carefully went through the accounts with the elerk at the mine, and he rould unde 'aa' et o say that everything was charged to Dec. 31, 1876. They were getting everything at the lowest price. He believed that Capt. Goldsworthy went to the best market, and as soon as able to attend to his duties again he proposed to appoint a store-keeper, and make him responsible for the receipt and delivery of all material. It was resolved that all cost-sheets should be signed by Capt. Goldsworthy be ore they were sent up for payment. The accounts were also put to the meeting and unanimously adopted.

The SECRETARY regretted to say that a serious illness had overtaken Capt. Goldsworthy within the last month, and that he had been compelled to seek the indulgence of the committee for leave of absence for some few weeks. This was granted to him, and in the meantime an experienced agent has been requested to take the whole charge of the mine, and to follow the instructions given to him by the manager, through the committee. Capt. Goldsworthy. I am pleased to say, is improving in health, and I hope in a short time he will be able to resume his duties of the short of the shall he had ne

and valuable property would be laid open. He thought the Bridge lode ought to receive attention.

and valuable property would be laid open. He thought the Bridge lode ought to receive attention.

The BECKETARY remarked that practical authorities said the Bridge lode was the best in the sett, and in reply to shareholders stated that he believed there were 25 fms. to drive from the end of the cross-cut to the Bridge lode, \$5 fms. having already been driven, but much attle had been deposited in this cross-cut by the old workers, and would have to be cleared away. He could not find any record of the price paid for driving the end. He might mention that they would have to exect another drawing engine, as theirs had been in use 25 years, and was worn out, so that they were liable to a break-down at any time, or to endeavour to dispense with steam altogether, by making a spare water-wheel available for hauling purposes. If this could be done it would make a difference of 40, per month.

Mr. ROSEWARES thought this was a matter that had better be left in the hands of the committee and secretary, and to be settled by them after consulting with the engineers who would have to do the work.

It was then proposed by Mr. POWELL, and seconded by Mr. ROSEWARE, that seeing that the prospects of the mine justify the shareholders in continuing the present vigorous development of the mine, a call of 2s. per share be made.

The call was unanimously agreed to, and the usual complimentary votes having been passed the proceedings terminated.

GREAT WHEAL VOR UNITED MINING COMPANY.

At a special general meeting of adventurers held at the offices of the company, Gresham House, Old Broad-street, on Monday (Mr. John O. Hanson in the chair), Mr. J. Jameson Truran read the

JOHN O. HANSON in the chair), Mr. J. JAMESON TRURAN read the following report:—
Since the special meeting on Feb. 8 we have continued the driving of the crossents south at the 100 fm. level, which is now driven 3 fms. 4 ft. south of the lode; when about 16 ft. we intersected a small branch running parallel with the lode, but its underlie not so much; therefore there is no chance of it uniting with the lode at a deeper level; it is composed of black capel similar to the lode, but contains no tim. Our development at this level, although limited, has quite satisfied me that in order to find tim in paying quantities deeper sinking is required, and I could not advise the spending of money at this or in the shallower levels.

It was then resolved that the resolutions proposed at the special general meeting of adventurers, held on Feb. 8, be confirmed, and that the committee be requested to accept the sum of 50 guineas as the remuneration for their services in winding-up the affairs of the company.

company.

For remainder of Meetings secto-day's Journal.]

Registration of New Companies.

The following joint-stock companies have been duly registered:—WALLASEY BRICK AND LAND COMPANY (Limited).—Capital 30,000 in 80, shares. To acquire and work beds of clay, sand, and other minerals, and to carry on the manufacture of bricks and tiles. The subscribers, who take 60 shares orth, are—F. Sherwood, Egremont, gentleman; James Ridehaigh, Liskeard, builder; B. Looney, New Brighton, estate agent; T. V. Burrows, Egremont, builder; B. Crellin, Bandrock Park, Liskeard; G. Henderson, New Brighton, Obeshire, contractor; J. Ellis, Secombe, contractor. The directors are—Messrs P. Ishewood, J. Ridehaigh, T. V. Burrows, H. Crellin, G. Henderson, and John Blits, the qualification being the holding of 30 shares.

RENSINGTON GORE MANSIONS (Limited).—Capital 250,000 in 10 shares. To rect mansions at Rensington, &c. The subscribers are—H. Godolphin Osborne, Chapel-street, Park-lane, 25; William T. Raymond, 32, St. James s street, 25; D. B. Johnson, Ethium, Rent; L. Gasquet, The Woodlands, Barnes, 25; C. Gasquet, 35, Queen-street, Cheapside; C. H. Driver, S. Victoria-street; C. H. Slee, Catford, 1. BOWING'S PATENT FILITER PRESSCOM PANY (Limited).—Capital, 50,000 in 53, shares. To acquire a patent for a filter press, and to carry on the manufacture of the same. The subscribers are—T. E. Poakes, The Priory, West Moulsey, 250; John E. Grav, Windham Club, W. 100; J. Davies, Blaech Marland House, Pembrokeshire, 100; T. W. Hobson, Collingwood Works, Blaech Marland House, Pembrokeshire, 100; T. W. Hobson, Collingwood Works, Blaekfriars, 200; T. G. Howell, 16, Great Winchester-street, 200; John Ward, 2, St. Michael's House, Cornhili: John Bowing, 2, St. Michael's House, MOSAIC TILE COMPANY (Limited).—Capital 10,000, in 51. shares. To acquire patent rights in connection with mosal cities. The subscribers are—J. B. Langley, 60, Lincoln's Inn-fields, 10; J. Fletcher, 7, Pakenham-street, 10; C. M. Shaw, 20; Catherine street, 8; J. Johnson, 118, Gowwell roud, gas engineer; W. F. Robinson, 4, Canonbury roud, N., 5; Thomas Horton, 40, L The following joint-stock companies have been duly registered:-

Newcastle, accountant. Mr. Herdman will be the managing director. The qualification for an ordinary director is 10 shares.

BENJAMIN EVANS AND COMPANY (Limited).—Capital 30,0000, in 10, shares. To acquire the drapery business of Mr. B. Evans, of Newport, Monmouth-shire. The subscribers are—Benjamin Evans, Newport, 100; John Marchan, Newport, 100; R. Rugs, Newport, 100; R. Rugs, Newport, 100; R. Rugs, Newport, 100; John Warchan, Newport, 100; R. Rugs, Ne

w. Jones, 115, Greepside; George Brown, 121, Blowstreet, I.
ELECTRIC WRITING COMPANY (Limited).—Capital 20,000/., in 201. shares acquire the business of the Electric Writing Company, of 9, New Broad-street, esubscribers (who take one share each) are—J. Royce, Middlesborough; H. J.
Sculloch, 175, Gresham House; J. R. Breckon, Sunderland; James Morrel', 3, Oxford-street; T. W. Breckon, Blakeney; J. Raine, 20, Holmside, Sunder dt. W. Soener, Newmastie-upon-Tyne.

363, Oxford-street; T. W. Breckon, Blakeney; J. Raine, 20, Holmside, Sunderland; W. Spencer, Newcastle-upon-Tyne.

CHESTERTON COAL AND IRON COMPANY (Limited).—Capital 208,0001., in 1301. shares, of which 871. 10s. will be credited as paid. To work for coal, clay, and other minerals at Chesterton, parish of Walstanton, Stafford, and to acquire the business of the Chesterton Company (Limited), according to an agreement made between A. E. Wenham and John Topham, the liquidators of the old company, and the said company of the one part, and J. T. Thorneycro't of the other. The subscribers are—John Topham, Middleham, gentleman, 1; J. P. Gardner, Cannock, Stafford, 1; E. C. Peake, Rugeley, colliery proprietor, 1; D. H. Monckton, M.D. Rugeley; R. Landor, Ruweley, nolicitor; Thos. James, Rugeley, bookseller, 1; H. C. Peake, Walsall, mining engineer, 1. The directors are—Messrs, James Finlay, J. P. Gardner, R. Lundor, John Topham, and three others to be appointed by them. The qualification is the holding of shares to the value of 10004. LANCASHIRE COAL COMPANY.—Capital 20,0004, in 104. shares. To acquire from C. G. Mott the business carried on by him at Birkenhead under the style of the Lancashire Coal Company, according to an agreement made between himself and Hugh Powell. The company will carry on business as on'owners and mir ers, 2c. The subscribers are R. C. Johnson, 11, Dale-street, Liverpool, coal mercha 1, 10; W. M. Lightfoot, York Villa, Chester, gentleman, 10; H. H. Mott, 36, Hamilton-square, Birkenhead, wine merchant, 10; Thos. Dunnett, 5, Harvington-street, Liverpool, accompany will be at Birkenhead. The directors are not yet appointed.

MORLEY VICTORIA QUARRY COMPANY (Limited),—Capital 80,0004, in

overpool. In emices of the company will be as Intended,—Capital 80,000l., in to yet appointed.

MORLEY VICTORIA QUARRY COMPANY (Limited).—Capital 80,000l., in ... chares. To work for and sell stone at Morley, Yorkshire. The sub-cribers are—siah Rhodes, Morley, York, machine maker, 80: F. F. Smith, Morley, joiner, 8: ecorge Hurd, Morley, quarrymaster, 6: James Brown, Morley, agent, 10: George ohnson, Morley, builder, &c., 19: H. Broadbent, Morley, 12: J. Wilkinson, torley, overlooker, 10. The directors are not yet appointed.

Morley, overlooker, 10. The directors are not yet appointed.

SWEDISH RAILWAY EQUIPMENT COMPANY Limited.—Cap'tal 50,000/Lin 10% shares. To construct railways and other public works in Sweden. The subscribers are—Christopher Wegulin, M.P., 57%, Old Broad-street, 10; George Wythes. Bickley Park, contractor, 10; Robert Fletcher, 3. Lothbury, 10; Arthur Eden, 57%, Old Broad-street, W. P. White, 57%, Old Broad stree; H. L. Bi schoffsheim, 31, Throgmorton-street, 10; G. A. Barnes, 12, Sandcroft-terrace, Dulwich, 1.

wish, 1.

JOSEPH HALLIDAY AND CO (Limited), —Capitul 20,000l., in 5t. shares. To acquire patent rights in connexion with a self-cleaning filter, &c. The subscribers, who take I share each, are—Joseph Halliday, 148, Bury New road, Rochda'e; J. E. Gibbs. Salem House, Rochdale; D. Butterworth, Southport; M. Ashworth Rochdale, H. Chadwick, 29, John-street, Rochdale; S. Banuick, Rochdale; W. Ashworth Duckscriper, Rechdule.

worth, Duke-arreet, Rechdale,
CIVIL SERVICE MEAT SUPPLY ASSOCIATION (Limited).—Capital 150,0001,
in preference staces of 51. and ordinary shares of 21. To carry on business as
butchers, poulterers, &c. The subscribers are—J. D. Shakespeare, J. P., 7, Savillerow, 10; G. H. Armstrong, H.M. Customs, 10; A. C. Lyster, Inland Revenue, 10;
H. J. Maclean, 9, King's-to-ad, Bedford row, 10; W. D. Young, clerk in the Post
Office, 10; H. Hill, clerk, India Office, 10; C. H. Pontet, clerk, Post Office, 2.

NEW ZEALAND. - The Taranaki News states : - We are informed that the Gove

The Median Deverment have received information that the Upper Wanganui natives are in a state of great excitement, owing to reports of people being out prospecting for gold and coal, and that they are on the look-out for prospectors.

A telegram in the New Zealand Times states that another rich lode has been struck in the Mount Rangitoto silver mine, 9 ft. below the present working, which gives an assay of 340 onces to the ton. A large reef, 10 feet thick, of porphyrite quartz impregnated with silver, has also been discovered on the company's lease

a quarter of a mile from the present working. The reef has been driven on for a distance of 16 fact. The company have 366 feet of tunnelling in, and are prepared to stope out hundreds of tons of ore.—Sydney Morning Herald, Jan. 12.

THE SCOTCH MINING SHARE MARKET-WEEKLY REPORT AND LIST OF PRICES.

AND LIST OF PRICES.

During the past week the market has been very quiet, and no special feature to notice. In shares of iron and coal concerns Ebbw Vale has advanced 7s. 6d. per share, and Arniston 2s. 6d.; while Shotts have fallen 20s.; Bolckow, Vaughan, A, 5s.; Marbella, 3s. 6d.; Lochore and Capledrae, Omoa and Cleland, also Scottish Australian 2s. 6d. each. Andrew Knowles and Sons are at par to 10s. prem. (17l. paid). Cardiff and Swansea, 40s. to 45s. Consett, 19\(\frac{9}{8}\) to 19\(\frac{3}{4}\). Mersey, 20s. to 16s. dis. Pelsall, 10\(\frac{1}{2}\) to 9\(\frac{1}{2}\) dis. Scottish Australian, 37s. 6d., buyers. Sheepbridge, 6 to 5\(\frac{1}{2}\) dis. Staveley, A, 30\(\frac{1}{2}\) to 91\(\frac{1}{2}\) by mem; ditto C, 90\(\frac{1}{2}\) to 91\(\frac{1}{2}\). West Cumberland, 11\(\frac{1}{2}\) to 11\(\frac{1}{2}\) dis. Workington Malleable, 14 to 16. The meeting of the Monkland Company will be held on March 20. The Benhar Company yesterday recommended the dividend for the last six menths to be 6 per cent. which is the same as the previous one, and compares with day recommended the dividend for the last six months to be 6 per cent. which is the same as the previous one, and compares with 9 per cent. a year since; from this it would appear that the worst of the depression has been reached, if not as regards colliery companies generally, at least as regards this one in particular. At the Marbella meeting on March 6 a dividend of 3s, per share, payable on March 16, was declared. The M. Moxham case has been settled by payment to the Marbella Company of 17,000% and all law expenses. The sales of ore have not been very large, but there was a large stock on hand, with facilities for increased output.

In shares of foreign copper concerns the movements in prices continue favourable, Rio Tinto 7 per cent. bonds having advanced 35s. Tharsis 12s. 6d., Rio Tinto shares 10s., Huntington 1s. 9d., and Yorke Peninsula (ordinary) 1s. 3d. Yorke Peninsula (preference) remain at 20s. to 25s. Some business has been done in Panulcillo at 28s. 9d. and 30s. Copiapo are 12½ to 11½ dis. New Quebrada, 80s. to 85s.

80s. to 85s.

In shares of home mines a little more business has been done.

aszow Caradon has advanced 1s. Bampfylde are at 8s. 9d. to 10s. In shares of home mines a little more business has soon to lost Glasgow Caradon has advanced 1s. Bampfylde are at 8s. 9d. to 10s. Cargoll, 5 to 5½. East Van, 8½ to 8½. Glenroy, 30s. to 40s. Glyn, 40s. 42s. 6d. Great Laxey, 20½ to 20½. Killifreth, 20s. to 21s. 3d. Leadhills, 6½ to 6½. Medlyn Moor, 30s. sellers. Parys Mountain, 9s., buyers. Penstruthal, 11s. to 12s. South Condurrow, 6½ to 6½. Tincroft, 19½. Van Consols, 57s. 6d. to 60s. West Tankerville, 30s. to 35s. Wheal Agar, 65s. to 75s. Wheal Grenville, 12s. 6d. to 17s. 6d. Wheal Kitty, 55s. to 60s. Wheal Uny, 36s. to 38s.

17s. 6d. Wheal Kitty, 55s, to 60s. Wheal Uny, 36s, to 38s. In shares of gold and silver mines, Last Chance are 10s., and Flagstaff, also Richmond, each 7s. 6d.—all lower. The Richmond run is \$42,000, being \$2000 better than previous week. It is said application will shortly be made for quotations and settlements of the Exchequer and I X.L. Companies' shares on the Glasgow and other Scotch Stock Exchanges. Some business has been done in Almeda and Tirito, at 7s. 6d., closing 5s. to 7s. 6d. Chicago are at 80s. to 90s.; Eberhardt and Aurora, 8\frac{3}{2}\$ to 9; Emma, 7s. 6d. to 10s.; St. John del Rey, 280 to 300; Santa Barbara, 38s, to 40s.; South Aurora, 6s, 3d, to 7s. 6d. John del Rey, 280 to rora, 6s, 3d, to 7s, 6d.

In shares of oil concerns, Young's Paraffin have recovered 16s. 3d.; Uphall, 10s.; and Oakbank (new), 6d., but Oakbank have fallen 1s. Runcorn Soap and Alkali are at 57s. 6d. to 47s. 6d. dis.
Shares of miscellaneous companies continue a very slow market.

Shares of miscellaneous companies continue a very slow market. Scottish Wagon (n-w) mark a reduction of 2s. 6d. Cheshire Amalgamated Salt Works are at 14\(\frac{3}{2}\) to 15\(\frac{3}{2}\); Earl-'s Shipbuilding, 22 dis, sellers; Langdale's Chemical, 77*. 6d. to 80s.; Lawe's Chemical, 6\(\frac{1}{2}\) to 6\(\frac{3}{2}\); Milner's Safe, 9\(\frac{1}{2}\) to 10\(\frac{1}{2}\); Newcastle Chemical 85s. to 8\(\frac{1}{2}\). 80s. dis.

ed are this week's quotations, &c., of mining and metal shares quoted or ojoined are this week's quotations, &c., of mining and metal scotch Stock Exchanges; —

apital,
Dividends.
Rate per cent.
Paid per annum.
by up. Previous. Last.
L Capital.

10	***	10		9		6	Benhar Coal (Limited)	936
10		8		9		6	Ditto	
100		AW			.1		dt Bolckow, Vaughan, and Co. (Lim.) A.	5214
10	***	10	***	10		10		8
10	***	10	***	nil		4	Chillington Iron (Limited)	824 6.4
32	***	29		nil		nil		9%
10	***	5		mil		nil	1Fife Coal (Limited)	50a.
10	***	10		-	***	-	Glasgow Port Washington Iron & Coal (L)	504.
10		10		-		-		509.
10		10		-		-	Lochore and Capledrae (Limited)	61/2
10	***	10	***	nil	1.19	nil		749.
10		10		nil		nil		559.
10	***	10		- 5	***			5
100		100	***	nil	***	nil	Nant-y-Glo & Blaina Ironworks pref. (L)	2014
6		5	3	nil		nil	Omoa and Cleland Iron and Coal (Lim.).	328. 64
1	***	1		12	5	175	14 Scottish Australian Mining (Limited)	499.
1		88			2	173	1/2 Ditto New	10s.
Stock	٤	100	***	5		nil	Shotts Iron	99
						CO	OPPER, SULPHUR, TIN.	
4		4		_		-		70 64
10		7		20#	g	20s	s [Cape Copper (Limited)	40
1	***	1		15	***	-	Glasgow Caradon Copper Mining (Lim.).	2'8.
1	***	159		15		-	Ditto New	
10		95		ni!		nil.	Huntington Copper and Sulphur (Lin .).	15a. 6d.
25s.	***	23s.		-		-		64.
4		4	***	-		-	Panulcitlo Copper (Limited)	304.
10		10	***	6†		61	Rio Tinto (Limited)	8
20		20	***	-		7	Ditto, 7 per cent. Mortgage Bonds	15%
100		100	***	-		5	Do., 5 p.ct. Mor. Deb. (Sp.Con. Bds.)	64
10		10		nil		nil		50%.
10	***	10	***	25	***	225	1/2 Tharsis Copper and Sulphur (Limited)	2134
10		7	***	25		221/	1/2 Ditto New	14.7%
Ţ	***	1	***	$\overline{}$		-	Yorke Peninsula Mining (Limited)	79. dd.
1	***	1		_		-	Ditto, 15 per cent. Guaranteed Pref	dia. 3d.
							GOLD, SILVER.	
1	***	1		10.000			Australian Mines Investment (Limited).	8s. 9d.
20	***	20		-	***	******	Emma Silver Mining (Limited)	10a.
10		10		niame.	***	*****	Flagstaff Silver Mining (Limited)	659.
5	***	5		******	100	Triang	Last Chance Silver Mining (Limited)	109.
5	***	8	7	8. 6d	17	s. 6d	d Richmond Mining (Limited)	634
							OIL.	- /-
10		7		5	***	6		834
1	***	1	***	_	***		14. Oakhank Oil (Limited)	478.
1	***			-	***	71	14 Ditto	124.
10	***	10	****	_	***	24	Uphall Mineral Oil (Limited) "A"	95%
10		10	***	_	***	-/	Ditto "B" Deferred	10
10			á	5		9	Young's Paraffin Light & Mineral Oil (L).	1356
		- /	3					1078
*0		OF		70			MISCELLANEOUS.	
50		25		10		5	London and Glasgow Engineering & Iron	0000
20		241/	,	_			Shipbuilding (Limited)	2014
10	400	14 1/2		6	***		Peruvian Nitrate (Limited)	111%
10	***	4	000	6		6	Scottish Wagon (Limited)	1134
10	***				nter		Ditto New	859.
		Las	t do	W for	e thi	0.000	Per share.	
mit							count, March 10; settling day, March 14.	

Note.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch in vestors are interested. In the event of any being omitted, and parties desiring quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and SI Post Office Buildings, Stirling, Murch 8.

CHEMICALS, MINERALS, AND METALS.—(Messrs. J. Berger Spence and Co., March 6)—Acetate of Lime, 9t. per ton.—Alumina: Alum, 8t. 15s. for loose lump; ground, 7t. 15s.—Aluminus cake, 4d. 10s.—Ammonia: Sulphate, grey, 18t. 10s.; best London white, 19t. 5s.; muriate—white, 28t.; grey, 27t.; aal anmoniae, firsts, 48s.; seconds, 44s.—Acid: Tartaric, English, ground or crystal, 1s. 7d.; foreign. 1s. 6½d., crystals; oxalic, 5d.; sulphuric, 3t. 10s. to 3t. 15s.; picrio acid, 1s. 9d, per 1b.—Arsenic: New Consols make 3t. 7s. 6d.—Bleaching Powder: At 6t. 7s. 6d.: for the whole of 1877, 6t. 15s. to 7t.—Litharge: Best flake, 24t.—Metallic Salts: 1ron salts, green and rusty copperas, 55s.; in casks or barrels, 60s.—Copper Salts: Sulphate of copper, 23t.—Magnesia: Epsora salts, 3t. 12s. 6d.—Nitrate of Bodn: 12s. 6d. to 12s. 9d.—Potash: Muriates, 80 per cent, at 6t. 8s. 6d. t. 0s.; Prussiante, yellow, 11½d.; chlorate, 9d.; bichrome, 4½d.—Bods: Cream caustic, 60 per cent., 12t. 5s.; white, 60 per cent., 12t. 12s. 6d.; soda acytals, 4t. 7s. 6d.; bi-carbonate, 1lt.; salt cake, 3t.; Glauber salts, 2t. 17s. 6d.—Sugar of Lead: Brown, 28t.; grey, 31d. 19s.; white, 3d.—Brimstone: Best thirds, 5t. 17s. 6d. China-clay, 15s. f.o.b. Cornwall; "Rosemellyn," 24s.; "BM." 34s.—Iron Ore: Hematite, 15s. to 22s. 6d.; Algerian, 53 per cent., 14s. f.o.b.—Manganese: Ores, 90s. for 70 per cent.—Pyrites: Spanish cupreous, 5½d.; non-cupreous, 6½d.—Phosphate of Alumina. 3d. to 3t. 10s. per ton.—Phosphates: High strength, 80 to 85 p. c., 1s. 4d. to 1s. 5d. per unit; Estremadura, 1s. 3d.; ordinary, 40 per cent., 1s.; precipitated phosphate of Jime, 70 per cent., 5t. 15s.—Iron: "Ayresome" Middlesborough Fig. Iron: No. 1, 49s.; No. 3, 46s.; No. 3, 67s. 6d., 1cs. 2½s. CHEMICALS, MINERALS, AND METALS, - (Messrs, J. Berger Spence

p. c., or four months' bill, net. — Scotch warrants, 55s. 6d.; Scotch, g.m.b., 3c., 55s.; No. 3, 51s. 6d. net. — Copper: Chili bars, 75s.; B. 8. ingot, 80s.; toget, 78s. — Lead Best English soft pig, 2l. 0s.; German soft pig, 2l. ol.f. Lieu or London—Spelter: Silesian, 20s. 10s.; English, "Swarzes Vale," 2s. Lieu or London—Spelter: Silesian, 20s. 10s.; English, "Swarzes Vale," 2s. Charlant, 72s.; Eritish, 74s. — Tin-Pintes: Best charcol, 25s.; best coke, 23s.; coke, 22s.—Tubes and Fittings: Discounts, 2s.

THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market by published the following statistics of imports of coals into the port and district of London by sea, railway, and canal during Feb. 1871.

By and Canal. By Railway and Canal. By sea. Newcastle..... Seaham 188 40 99 Midland ... li Great Eastern ... South-Western London, Chatham, & Dover., South-Eastern Grand Junction Canal ... 1,853 orkshire. Colonial ... Comparative Statement, 1876 and 1877.
By Sea. Ships. Tons.
Jan, 1 to Feb. 29, 1876. 1047. 686,0589 Jan. 1 to Feb. 29, 1876. 1871. 1975. 19 Increase 30 dec. 4,053 Decrease .

Subjoined is an export list, showing the distribution of coal inported into the port or district of London by sea, rail, and canal, and afterwards exported coastwise or to foreign parts, or sent beyond limits of the London district by rail or inland navigation during 68,515 February, 1877:-EXPORTS.

EXPORTS.

Railway-borne coal passing "in transitu" through district. Tons
Sea-borne coal exported to British possessions, orto foreign parts,
or to the coast...... 61,411 or to the coast.

or to the coast.

Ditt, , sent beyond limits by railway.

Ditt, by canal and inland navigation.

Railway borne coal exported to British possessions, or to foreign parts, or the coast.

Ditto, by rail beyond district.

Ditto, by rail beyond district.

Ditto, by canal and inland navigation.

Sea-horne coal brought into port and exported in same ships.....

Total quantity of coal conveyed beyond limits of coal duty district during February, 1877.

Comparative Statement, 1876 and 1877. 53,237 14,083 776= 68,09 39,917 453 Comparative Statement, 1876 and 1877.

Total distribution of coal from 1st January to 28th February, 1877.

Ditto 1st January to 29th February, 1876 Increase in the present year 32,47

General Statement, 1876 and 1877.
Decrease in coals imported by railway and canal during the pre-8,515 4,058= 72,5% ent year case in ditto by sea Decrease in ditto by sea Addincrease in exports... Total decrease in trade within London district during present year 195,00

BRITISH IRONMASTERS IN THE UNITED STATES.

Although it is of course preferable to carry on one's business at home, it is not in the nature of Englishmen to let the absence of home trade dishearten them when anything is to be profitably dose elsewhere; it is not, therefore, surprising to find that a number of North Country ironmasters and others connected with the coal and iron trades of the district have turned their attention to the United States as an eligible field for carrying on the manufacture of iver-States as an eligible field for carrying on the manufacture of iron, more especially as it is generally considered that the accession of the Hon. Mr. Hayes to the Presidential chair will ensure the maintainance of the protective duty on iron, and thus cause all localities favourably situated for the supply of the Northern States to reap a rich harves. That the time is not far distant when the United States will beable not only to supply herself with all the metallurgical production she requires, but also to export them, is admitted by all who has had an opportunity of judging of the capabilities of and progress making in the Union, and it is not unreasonable to conclude that the continue the earlier estates are selected the greater is the probability of ob taining them upon reasonable terms. Some two years since a com-pany was inaugurated—the Southern States Coal, Iron, and Land Company—for the acquisition of certain mineral lands of large value Company—for the acquisition of certain mineral lands of large value in the State of Tennessee, as well as for their development and the construction of suitable works. The original capital was fixed at 100,000. In 100. shares, and about 50,000. of this has been expended; the land (about 106,000 acres) has been purchased for 33,274. and paid for; 38,4311. has been expended on blast-furnaces, colliery, into mine, trainways, railway sidings, foundry, and other works; 1732 for draining and street making in town, and 5209. for building and stock-in-trade. As the directors did not ovicinelly contempted the for draining and street making in town, and 5209, for buildingad stock-in-trade. As the directors did not originally contemplate the erection of blast-furnaces, foundries, &c., until the mines were developed additional capital is required; the share capital was, therefore, increased by 150,000, in January, of which about 34,000, has been subscribed by existing shareholders, as the directors felt that they should take advantage of the stagmant state of trade in America, which permitted the comparatively cheap construction of blast furnaces, in addition to which they have concluded a purchase of red hematite ore within 11 miles of the furnaces. Two large furnaces, with 200 coke ovens and accessories, have been commenced. The directors have arranged with the Nashville, Chattanooga, and St. Louis Railroad Company, whose line runs through one of the

The directors have arranged with the Nashville, Chattanooga, and St. Louis Railroad Company, whose line runs through one of the company's properties, to extend their line from Jasper to the collery and coke ovens at Victoria (8½ miles), and have contracted for favourable rates of carriage on both minerals and goods for many years. The Coal and Iron Company will contribute 2400l, per mile towards the cost of the extension as the work proceeds, receiving 8 per cent. first mortgage debenture bonds in exchange.

Since the company took possession operations have been vigorously carried on, and favourable results obtained. The Sewane seam (a valuable coking coal) is that which is being opened out at Victoria (the new colliery town of the company) where an incline for bringing the coal down the face of the mountain to the coke ovens is nearly completed. A large number of men are here employed, white labour being plentiful, and wages low. This part of the property has just been examined by some of the di ector, who have confirmed the existence and continuity of the coal at different places, extending over 30 miles of the company's property. This have confirmed the existence and continuity of the coal at different places, extending over 30 miles of the company's property. This seam, which crops out to "day," runs 3 ft. 6 in. and upwards, and being 1000 ft. above the valley water level is being opened out by drifts; it is free from explosive gas, and will be worked at a very small cost. The necessary timber is also growing immediately overhead, and will be cut up for the company's use, at a saw-mill driven by the winding-engine at the head of the incline. The directors engine at the head of the incline. The directors

have proved that this coal makes a very first-class coke.

There is a daily increasing sale for both coal and coke at prices which will leave a handsome margin of profit, but rolling stock is scarce, and to utilise this market properly the company must spend several thousand pounds in providing cars for the traffic. These can be constructed in the company's own works, and from its own can be constructed in the companys own works, and from its timber, and will in a very short time recoup their first cost. With regard to iron, it appears that the company possesses practically illimitable stores of brown hydrate, red hematite, and argillaceous ores. These can be easily worked, being above water, and (like the ores. These can be easily worked, being above water, and (like the coal) adapted by situation to open quarrying and drifts. The mixture of these ores, in suitable proportions, will enable the company to produce a high-class brand of pig-iron. All the materials, excepting the brown hydrate, being so near at hand, it is estimated that pig-iron can be produced at the company's works below any other known cost, and, irrespective of local trade, will be delivered to the northern markets at a good profit, even though the present low prices should continue; this contingency however, is hardly exabble, 38 should continue; this contingency, however, is hardly probable, as it is believed that the American iron trade has already taken a turn for the better.

Ample preparation is being made for carrying on an extensive business. At South Pittsburg two blast-furnaces are being con

ald be ready in n this case, as in atension of work reat economy, o nt of prompt nent of produpt erials on most fa been er cted, and arge, and the m nents are at pres er sufficiently er fork being under At Victoria 20 icks are ready. refully designed t Victoria. The
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MARCH 1

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SUP

Tructed, with all the latest European improvements. The first one tructed, with all the latest European improvements. The first one will be in blast in about nine months, and the second, if required, will be in blast in about nine months, and the second, if required, will be in blast in about nine months, and the second, if required, will be in blast in about nine months, and the second, if required, and is now in the sease, as in others, with every care, allowing ample room for this case, as in others, with every care, allowing ample room for this case, as in others, with every care, allowing ample room for the first one of prompt cash the company has secured both labour and mannet of prompt cash the company has secured both labour and mannet of prompt cash the company has secured both labour and mannet of prompt cash the company has secured both labour and mannet of prompt cash the company has secured both labour and mannet of prompt cash the company has secured and made in a considerable work work, but ments are at present fully engaged on the company's own work, but ments are at present fully engaged on the company's own work, but ments are at present fully engaged on the company's own work, but ments are at present fully engaged on the company's own work, but ments are at present fully engaged on the company's own work, but ments are at present fully engaged on the company's own work, but ments are at present fully engaged on the company's own work, but with the later is engloyed. The machinery for the fire-brick works has been carefully designed and made in England, and is now being erected at victoria. The fire-clay will be worked in conjunction with the attributes are excelled; the former is just commencing work, while the seen erected; the former is just commencing work, while the seen erected; the former is just commencing work, while the seen erected; the former is just commencing work, while the set of anything the present present present present present present present presen

TREATMENT OF ARGENTIFEROUS PYRITES.

An important invention connected with the manufacture of salts of barium, and indirectly applicable to the extraction of silver from argentiferous pyrites, has been patented by Messrs. Wallace and Claus, of Battersea and Great St. Helens; it relates in the first place to the production of hyposulphite of baryta, from which they produce the other hyposulphites by double decomposition with their respective sulphates. They first prepare sulphide of barium by heating the native sulphate with carbonaceous materials. Of this sulphide of barium they prepare a solution and inject into it sulphurous acid gas, obtained in any convenient manner—for instance, by burning sulphide of hydrogen in contact with atmospheric air, of from the roasting of pyrites, or by blowing a current of air over burning sulphur. To force the sulphurous acid into the liquid a blowing engine may be employed, or a steam injector. The effect of the sulphurous acid gas upon the sulphide of barium solution is the formation of hyposulphite of baryta, which precipitates in a crystalline white powder, which they separate from the mother liquor by filtration, and wash it with clean water. Mother liquor and washings contain a small quantity of hyposulphite of baryta in solution, and in order that this may not be lost they use the same for dissolving fresh quantities of sulphide of barium. The precipitate of hyposulphite of baryta after being drained they either dry and use it as such, or they use the same in the moist state for the decomposition of alkaline sulphates, or the sulphates of other bases forming soluble hyposulphites. For instance, the reaction just above described may be made of the most important use in the extraction of silver from roasted argentiferous pyrites. It is well known that hyposulphite of soda has a more than 20 times greater dissolving power for chloride of silver than the common salt usually employed. In the process of chloridising or washing argentiferous pyrites—that is say, in the roasting of pyrites with common salt—a quant An important invention connected with the manufacture of salts proper for chloride of silver than the common salt usually employed. In the process of chloridising or washing argentiferous pyrites—that is say, in the roasting of pyrites with common salt—a quantity of sulphate of soda is formed, which enters into solution during the process of lixiviation with water. Into this liquor of the extracting vats, containing sulphate of soda, they mix an equivalent quantity of the hyposulphite of baryta; the sulphate of baryta formed is separated; the superabundant liquor containing the hyposulphite of soda is used for the extraction of silver by dissolving the chloride of silver in the one. Native sulphate of baryta being almost invariably found near metalliferous deposits, and the sulphurous acids being readily obtained from wasting of pyrites, the cost of the use of hyposulphite of baryta is actually less than that of common salt; besides this, it does not foul the liquors so soon as the salt does. In preparing commercial hyposulphites from the hyposulphite of baryta the sulphate of baryta formed is washed and filtered off and used as pigment, whilst the filtrate is boiled down and crystallised in the usual manner, such as, for instance, hyposulphite of soda. As to the other manner, such as, for instance, hyposulphite of soda. As to the other hyposulphites, such as that of alumina, zinc, and the like, also used in the arts, these may be employed in the manner most convenient or the purpose.

for the purpose.

The invention will also be interesting to miners from its being likely to create an increased demand for barytes, since it includes the manufacture of precipitated carbonate of baryta and chloride of barium from materials not hitherto used for that purpose, and the employment of which makes the production possible of these salts at a very low cost, so that the same may be employed for purposes from which their cost of production now excludes them. They prepare carbonate of baryta by precipitating it by means of carbonate of ammonia or gas liquor from solutions of sulphide of barium. The precipitate is washed with water, filtered, and dried, this drying being effected in closed vessels (preferably by steam), in order to collect and absorb the sulphide of ammonium given off by sulphuric acid. The carbonate of baryta obtained is useful, for instance, for the manufacture of cheap flint glass (it being free from iron), or as

acid. The carbonate of baryta obtained is useful, for instance, for the manufacture of cheap flint glass (it being free from iron), or as a glaze for pottery ware.

The filtrate consisting of a solution of sulphide of ammonium they distil by means of steem, as in the ordinary gas liquor, and the volatilised sulphide of ammonium they convey into sulphuric acid or hydrochloric acid, whereby sulphide of hydrogen is liberated and sulphate or chloride of ammonium is formed. The sulphide of hydrogen given off they convey into a burner (with the necessary precautions against explosions), and burn the same in combination with atmospheric air into sulphuric acid, which they convey into the sulphuric acid chambers for the manufacture of sulphuric acid therefrom, or they employ it for injecting into solutions of sulphide of barium for the manufacture of hyposulphite of baryta. Or they concentrate the sulphide of ammonium filtrate by distillation at the most suitable temperatures (in the manner known to manufacturers, concentrate the sulphide of ammonium fittrate by distillation at the most suitable temperatures (in the manner known to manufacturers, and now practised with weak carbonate of ammonia solutions), pass sulphurous acid gas, which may be diluted with air or other gases, through the same, whereby they obtain some sulphate of ammonia, but also considerable quantities of hyposulphite of ammonia. This liquor they decompose by sulphuric acid for the purpose of manufacturing commercial sulphate of ammonia therefrom. Free sulphur is then supparated and they calledt and malt, the same into cakes. is then separated, and they collect and melt the same into cakes, and sulphurous acid gas is given off, which they convey into the lead chumber sfor the manufacture of sulphuric acid. This sulphurate is a sulphurate of sulphurate acid. ous acid gas being unmixed with other gases, and containing already two equivalents of oxygen in combination, and only requiring one more to form sulphuric acid, enables the chambers to produce three times the containing already

more to form sulphuric acid, enables the channers to produce times the quantity of sulphuric acid in the same cubic space.

By decomposing the hyposulphite of baryta obtained, as described with carbonate of soda, Mess's. Wallace and Claus also manufacture carbonate of baryta and hyposulphite of soda, and they also claim the mean of baryta and hyposulphite of soda, and they also claim the mean of baryta and hyposulphite of soda, and they also claim carbonate of baryta and hyposulphite or sona, and they have chained the manufacture of chloride of barium by heating the refuse resulting from the manufacture of acetic acid from acetate of lime and hydrochloric acid (and which consists principally of chloride of calcium and tarry matter), together with native sulphate of baryta

and carbonaceous materials. By this operation chloride of barium and carbonaceous materials. By this operation chloride of barium is formed, which dissolves out readily with water, leaving behind undissolved sulphide of calcium, similar to that forming alkali waste in the manufacture of alkali. If the solution should contain any sulphur compound they destroy the same by the action of chlorine on the same, but generally there is very little sulphur in the solution. By lixiviating the flux with hot water a solution may be obtained strong enough for crystallisation. If cold water be used for lixiviating the liquor is boiled down and crystallised by cooling. The mother liquor they use for dissolving fresh quantities of the crude chloride of barium. Any sulphur compounds present in the liquor may also be destroyed by gently heating or calcining the crude crystals of chloride of barium and re-dissolving and re-crystallising them.

IMPROVEMENTS IN BLAST-FURNACES.

IMPROVEMENTS IN BLAST-FURNACES.

With a view to provide increased facilities for regulating or directing the hot-blast supplied to blast-furnaces, to diminish the liability of the apparatus to injury or deterioration from the effects of the hot-blast, to ascertain when any part of the apparatus is deranged or not in proper working order, and to effect necessary repairs without impeding, interrupting, or impairing the working of the furnace, Mr. D. G. Hoey, of Workington, Cumberland, proposes to provide a main pips to encircle or surround the furnace and receive the branch pipes leading from the different heaters, which pipe is divided into sections by means of valves, which in the ordinary working of the apparatus remain closed, so that each heater supplies its own corresponding tuyere. Each of the branch pipes is fitted with a valve near the heater, and with another valve near the furnace, the encircling main pipe being situate between these two valves, both of which during the normal working remain open. When, however, any heater is observed to be even slightly out of order it can be isolated by closing the valve near to the said heater, whilst by opening one or more of the valves in the main pipe the blast will continue to pass into the tuyere without any interruption. The valves atranged in the branch pipes near the furnace are so constructed that when the pipe leading from the main pipe to any tuyere is out of order it is isolated from the main pipe by closing its valve, and the supply to the tuyere is continued as before through an auxiliary pipe, which he attaches when required, a suitable flange being provided in the main pipe opposite each tuyere room for the purpose. When also it is suspected that water is escaping into the furnace at any tuyere it can be ascertained by closing its valve and withdrawing the ordinary plug, when a portion of the blast from the other tuyeres will be ejected through the aperture, and the presence of the least moisture will be detected. Between each heater and its adjacent

Where heaters are divided into two or more compartments though which the blast is successively conducted Mr. Hoev fits in connection with each of the compartments a cock of a similar description and performing a similar function to the cock before referred to, so as to ascertain the degree of heat in each compartment. He further regulates the working of the several compartments by combining with the use of the ordinary syit valve of damper semployed between the ascertain the agree of the several compartments by combining with the use of the ordinary exit valve or damper employed between the heater and the exit flues a sliding door or valve at the fire end or entrance, by adjusting the degree of opening of which the heat may be caused to pass more or less into the different compartments. He also protects the pipes at the hot end of the heater by means of an air chamber formed between the said pipes and the ordinary protecting brickwork, through which chamber a current of cool air (admitted from the external atmosphere) is caused to constantly pass, such current being conducted either by a direct or a circuitous course to the fire, so as to effectually prevent the pipes from being hurnt by the heat impinging directly upon them. In the portion of the main pipe which is situate at the front of the furnace provision is made for an auxiliary tuyere, which may be used at or near the level of the other tuyeres, either continuously or as occasion may require, and either with the full power of the blast or with any lower degree which may be desired. He also so arranges the apparatus in connection with the auxiliary tuyere that in the event of the tapping hole becoming obstructed, or of the pot of the furnace getting deranged in its working, the blast may be directed at any level or angle in order to melt the obstruction either with or without the use of an external refinery or small furnace. the use of an external refinery or small furnace.

ATMOSPHERIC BRAKES.

ATMOSPHERIC BRAKES.

The construction of the mechanical arrangement of the atmospheric brake invented by Mr. Charles Cowdery, of Montgomery, embodies several improvements of importance. Within the frame which supports the flooring of each carriage is fixed an air-pump, which is worked by an eccentric keyed to one of the axles of the carriage. This eccentric is made with an arm extending laterally from its periphery, the free extremity of which is connected by a link to the piston-rod of the pump, so that whenever the wheels are in motion the rotatory movement of the eccentric works the piston-rod of the air-pump to and fro. In the centre of this link is fixed a pin, or short rod, which extends laterally on both sides of the link. Above this pin is arranged a lever hung from a bearing fixed to the under side of the floor of the carriage or other convenient part, one end of which is made of a duplex or fork-like form, this part having notches cut in it so as to catch or hold the pin before referred to when required. The free end of this lever is, when required, acted upon by a second lever, which, when brought into operation, depresses the end of the lever, thus causing its other or forked end to be raised and so lifted clear of the transverse pin of the link, so that when the brake is not wanted the forked lever moves to and fro without working the air-pump.

Behind the air-pump there is arranged a receiving cylinder or air

air-pump.

Behind the air-pump there is arranged a receiving cylinder or air Behind the air-pump there is arranged a receiving cylinder or air reservoir, which is fitted with a piston and self-acting valve, so arranged as to close at each return stroke of the air-pump. The air as it is pumped in is forced through the valve, and its pressure drives the piston forward, the rod of which being connected to the brakes they are actuated in a corresponding manner. Extending along the centre of the framing is a rod or shaft, which carries a heavy weight fixed to any convenient part of it. This rod has also fixed to it two cams or levers, one of which acts upon another lever, which allows the forked lever to fall and become engaged with the transverse pin of the link, and thus put the air-pump at work. The other cam or lever acts upon a second lever, which closes a valve in the receiving cylinder. To take the brakes off the guard or driver has merely to cause the longitudinal rod to make a quarter of a turn, which is done either by means of a wheel or lever arranged in any convenient done either by means of a wheel or lever arranged in any convenient position, and with a pawl or catch that takes into a notch, to keep the brakes off when they are not required.

the brakes off when they are not required.

To connect the brake system of the several carriages the longitudinal rod already mentioned is fitted at each end with a universal joint to allow for any difference of level or for any oscillation, and to one end of the rod a socket is fitted, having its extremity formed of a bell or trumpet shape. The other end of the longitudinal rod is formed of a spigot or wedge-like shape corresponding to the internal figure of the socket at the other end. In this way the carriages are most readily coupled up, the wedge end of one rod fitting into the socket end of the next carriage, and thus the several longitudinal rods form a continous one throughout the train. These connections are so made that the carriages can only be coupled up when nections are so made that the carriages can only be coupled up when the brakes are in a like position on each carriage—that is to say, the brakes of the contiguous carriage must accord with the position of those on the carriage to be coupled up.

of those on the carriage to be coupled up.

For use in station yards or where shunting is required there is fixed
to each end of the carriage a small hand lever, by drawing down

which causes the brakes to be taken off. If found necessary in order to avoid the admission of sand or dust into the air-pump, the air may be supplied thereto by means of a tube or pipe carried from the air-pump up through the roof of the carriage, and fitted with a cowl that may be turned away from the engine to prevent the admission of ash or dust. The engine and tender may also be fitted with this brake, so that the engine-driver has also the power of instantly putting the brake on independently of the guard; and in this way any one of the guards or the driver may stop the train without signalling to the others, and thus effect a most important saving of time, and in the event of any part of the train breaking away the weights being released, act at once upon the brakes and bring them into action. The brakes may also be applied to ordinary road vehicles, and arranged so that the driver may be able to put on the brake when required by his foot or hand.

THE MINERAL RESOURCES OF VIRGINIA.

THE MINERAL RESOURCES OF VIRGINIA.

Although the mineral resources of Virginia have been very frequently referred to in the Mining Journal, the description of the State, its geology, soils, minerals, and general capabilities contained in the volume* just issued by the Board of Immegration will be interesting to a large number of readers. The mineral resources of Virginia are very great, though as yet mostly undeveloped. They comprise gold, iron, copper, lead, and zinc, semi-bituminous and bituminous coals; granite, limestone, marble, freestone, greenstone, and brownstone, bricks and fire-clays, glass sand, plumbago, manganese, gypsum, salt, &c. In Middle Virginia gold is found in a belt some 15 miles to 25 miles in width that runs for 200 miles through that section from Washington city to Halifax Court House. This is known as the gold belt of Virginia; it is composed of a series of granitic, syenitic, steatitic, chloritic, and other rocks peculiar to this section striking north-east and south-west with the belt, and dipping at high angles, or standing nearly vertical. Stratified with these are numerous veins of gold-bearing quartz, seams of magnetic, specular hematite, and other ores of iron, trap dykes, &c. The gold found in these materials varies in value from \$1.50 to \$1000 per ton; an average 100 tons from the surface downward is estimated as worth \$939 32. Assays of samples from the Franklin Mine, in Fauquier county, gave from 200 lbs. of materials from the vein, as an average value—in one sample \$46.40 of gold and \$1.48 of silver; in another, \$72.55 gold and \$0.41 of silver; while another gave but \$2.32 of gold. The mean value of the assays of 10 samples was \$2.34.44 to the ton of 18 cwts. Large numbers of mines have been opened along the "belt," notably in Fauquier, Culpeper, Spotsylvania, Orange, Fluvanna, and Buckingham counties, and from these and gatherings from the surface and soils, \$1,662,627 worth of gold had reached the United States Mint up to June 30, 1871. If the same skill and capital were e

Plumbago of good quality occurs in Halifax, Amelia, and other Plumbago of good quality occurs in Halifax, Amelia, and other counties. Iron ores are found in great plenty, and the first successful furnaces in America were on the hematite beds of this section. In the gold belt are seams of specular iron ore from 10 to 15 ft. in thickness extending with the belt. Sulphuret of iron is very plentiful in the same range, and extensive deposits of brown hematite ores are well known, both in the belt and along its eastern border. Magnetic iron ores are found in thick veins in many localities, as in Buckingham, Spotsylvania, &c. It may be stated as a general fact that any section across the 200 miles of the length of Middle Virginia will embrace a dozen valuable seams of iron ore, including himonites or hydrous peroxides, magnetites, chromates. Middle Virginia will embrace a dozen valuable seams of iron ore, including limonites or hydrous peroxides, magnetites, chromates, sulphurets, micaceous, specular, &c., where the ores are abundant and easily mined. The introduction of cheap coal now inaugurated will bring these into use. Prof. Rogers gives analyses showing the ore to be worth from 50 to 59 per cent. of metallic iron. Bituminous coal and natural coke are found in extensive beds in the triassic or new red sandstone, especially in the Richmond coal field portion, where the coal-bearing rocks cover 150 square miles of surface. This field has been longer known and worked than any other field in America, but never to the extent that the value of its coals would seem to justify. On the north of James river five seams of coal have been opened, varying in thickness from 2½ to 8 ft., giving an aggregate of more than 20 ft., as at the Carbon Hill. On the south side of the river at Midlothian three seams have been opened, varying in thickness from 4 to 40 ft., making from 50 to 60 ft. of south side of the fiver at Middoman three seams may even been opened, varying in thickness from 4 to 40 ft., making from 50 to 60 ft. of coal. One of the seams on the north side from 2½ to 6 ft. thick is a natural coke (the coal having been coked by the intrusion of a trap dyke) known as carbonate; the other seams are coking coals highly bituminous. In the last edition of his "Coal Fields of Great Britain" Prof. Hull states that the Richmond coal field contains several beds of valuable coal one of which is from 30 to 40 ft in thickness highly of valuable coal, one of which is from 30 to 40 ft. in thickness, highly bituminous, and equal to the best coal of Newcastle. These mines are admirably located for commercial purposes, and the coals are highly commended by all who have used them. The carbonite, or natural coke, is described as a material admirably adapted for stoves, having a high heating power, and containing very little ash or

having a high heating power, and containing very little ash or sulphur.

The ores of the Blue Ridge are copper, more or less the whole length of the range, as carbonates, sulphurets, &c., chiefly in the latter form. In Floyd, Carroll, and Grayson a dozen mines were once opened and several thousand tons of ore yielding 6 to 30 per cent. of metal were sent to market. Professor T.S. Hunt, at the 1872 meeting of the American Science Congress, called attention to these Blue Ridge mines as sources from which abundant supplies of copper and sulphur could be obtained, stating that England imports from Spain sulphurets of iron for sulphuric acid, with which to treat the South Carolina phosphates, and that South Carolina brings native sulphur from Sicily for the same purpose, while the mountains of the Blue Ridge contain deposits of sulphur ore as rich as those of Spain. In the Great Valley there are excellent freestones, good quality brick-clay, kaolin, and several varieties of marble. Brown hematite iron oces are found in pockets in all portions of the valley, umber exists in many places. Lead and zinc have been worked for many years, and the deposits only require development to make the mining for these metals an important industry. Bituminous coal is found in the counties in the south-west where a portion of the Great Appalachian coal field of the United States crosses Virginia Territory, giving it nearly 1000 square miles of this remarkable deposit of fossil fuel. As the development of the mineral resources of a region both assist its industrial progress and are assisted by it. of a region both assist its industrial progress and are assisted by it, Virginia may well be congratulated that in this respect she enjoys an excellent position. The climate is all that can be desired, the animal excellent position. The climate is all that can be desired, the animal and vegetable productions are ample, manufactures are opening up, and there are great facilities for extension, whilst few States are as well provided with the natural highways for coast and foreign commerce. The wide circulation of the Summary cannot fail to be highly advantageous to the State, and may be useful to capitalists in this country who are seeking a field for the application of their capital

"Virginia: a Geographical and Political Summary, embracing a description of the State, its geology, soils, minerals, and climate; its animal and vegetable productions; manufacturing and commercial facilities; religious and educational advantages; internal improvements and form of Government. Richmond: Prepared and Published under the supervision of the Board of Immigration. London: Trübner and Co.

I. X. L.—We hear that rich ore has been struck in the lower level of this mine, and that the drift is nearly at the great ore chimney from which the rich ore was taken in the upper tunnel in the early days of this district. We look for a brilliant future for this mine. The Scandinavian road has been shovelled out up to the Exchequer Mine, and the Exchequer teams will soon be on the road hauling lumber to and ore from the mine. The weather has been quite warm this week, and in consequence thereof the snow is disappearing very fast. On Tuesday last we had a fail of rain, which continued during the day and into the night. The grad-

ing for the extension of the Truckee and Virginia Railroad from Carson to Genoa will commence early in the spring, and it is expected the cars will be running within the next eight months. Its completion will bring Silver Mountain within \$5 miles of the terminys. We are getting quite a large Chinese population here and the fracas that occurred among them on Thursday last may be a forestaste of more serious trouble, as it appears they belong to rival companies, and their had blood is getting hot. If more fights occur among them, and Justice Ford is called upon to take a hand in the mess, we hope he will inflict penalties that will no only cover costs, but assist in paying the county indebtedness.—Alpine Chronicle Feb. 3.

FOREIGN MINING AND METALLURGY.

There has been a brief outbreak of winter at Paris, but this circumstance has not exerted much influence upon the Parisian coal trade, which has been distinguished by the stagnation which it has so long exhibited. In the Nord and the Pas-de-Calais the situation also has not improved. The extraction has been reduced as much as possible, shorter working hours being the rule, but this has not prevented an accurulation of stocks, and sales have only been effected at heavy sacrifices. Floods have interrupted and impeded deliveries of coal by canals; but, under present circumstances, there have not been many complaints as to this, since it is not so much means of transport as orders which prake default. In the besin of means of transport as orders which make default. In the basin of the Loire coalewners are not much more satisfied with the state of affairs than in the Nord; the home consumption of the Loire district certainly shows rather more strength, but deliveries to more distant points leave a great deal to be desired. M. Vuillemin, engineer-in-chief of the Aniche Company, has been appointed president of the committee of colliery proprietor; of the Nord and the

Pas-de-Calais, in succession to M. Bigo, deceased.

The imports of pig-iron into France declined to rather an appreciable extent last year as compared with 1875. The quantity of pig made in France last year is returned at 1,395,000 tons, or 20,000 tons less than the corresponding production for 1875. The production of iron in France last year was 873,000 tons, or 31,000 tons less than in 1875. The production of rails especially fell off in France last year, having declined to 85,000 tons, as compared with 125,000 tons in in 1876. The production of steel also declined to some little extent in France last year, having receded to 230,000 tons, as compared with 238,000 tons in 1875. There was, however, an augmentation of about 238,000 tons in 1875. tation of about 3000 tons in the production of steel rails last year. tation or about 3000 tons in the production of steel rails last year. The consumption of steel rails in Fr nce last year is considered to have remained about stationary. As regards the current aspects of the French iron trade there is nothing interesting to report; prices remain at about the same level, and ro fresh order of importance has been received. A house is being constructed at Paris which will be experienced in the price of the price of the production of the price of the production of has been received. A house is being constructed at Paris which will be entirely of iron, with the exception of its two street fronts.

will be entirely of iron, with the exception of its two street fronts. The weather has been severe in Belgium during the last few days, but notwithstanding this domestic qualities of coal do not show any advance in prices. The reason for this is probably a belief that recent severe weather must be regarded as accidental, and not likely to last. Metallurgical industry remains in the same dull, depressed condition in Belgium, and this circumstance, of course, tells adversely upon the Belgian coal trade. Floods have also impeded navigations on canals and rivers; and, upon the whole, the state of affairs is not brilliant for Belgian coalowners. Prices in the Belgian coal trade are almost what buyers choose to make them, and it is not at all difficult to conclude contracts with deliveries spread over the ensuing twelve months. Although the present severe crisis in affairs cannot last indefinitely, the fact just mentioned proves that its end is not yet immediately at hand. The Belgian sugar manufactories are concluding contracts for the ensuing season upon advantageous terms.

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advantageous terms.

The Belgian iron trade does not present any very great interest either as regards important orders or advancing prices; these latter can, of course, only be the result of a decided revival in affairs. Almost all the principal Belgian establishments have, however, em-Almost all the principal Belgian establishments have, however, employment assured to them for some months to come, and it is hoped that the spring will not fail to bring some little activity with it. Meanwhile there are great complaints as to the general condition of Belgian metallurgical industry. M. Malon is about to present to the Belgian Chamber of Deputies a proposal for an extraordinary credit of 720,000L; of this sum 280,000L is to be applied to the construction of the additional rolling stock which is considered to be required to ensure the satisfactory working of the Belgian State Railways. It is said that the re-starting of the Central Rolling Mill at La Louviere is in contemplation; plates are the speciality of these works, and it is this circumstance which induces the management to re-start the concern, notwithstanding the want of animation which business generally exhibits. The Low Countries have mation which business generally exhibits. The Low Countries have decided to admit iron and other metals free of duty. A contract is about to be let at Gluckstadt for seven locomotives and tenders for the Gluckstadt and Elenshorn Railway.

ST. JOHN DEL REY MINING COMPANY.

To remove the anxiety felt for some weeks for detailed information the directors have published, entire as regards any information relating to the mine or the operations thereat, the letter received from the superintendent, on Monday, in which there is nothing to cause uneasiness -garding the mine. As to the produce and yield for the first two divisions of February (19 days) the directors have no information beyond that contained in the telegrams. The directors learn with surprise that a report is being industriously circulated by parties interested in the sale of another mining property in Minas Geraes that they (the St. John del Rey directors) have been in treaty for it. There is not the remotest foundation for such a statement; they have never even given the marter a thought, for they are quite satisfied to devote their attention to the Morro Velhe.

they are quite satisfied to devote their attention to the Morro Velho Mine alone.

The advices received on Monday are da ed Morro Velho, Jan. 31, and state that the general work within the establishment, underground and at surface, has been uninterrupted during the last two weeks of January. The rainfall for that period has been 6-44 in., and for the whole month 12-43 in. On Jan. 23 the rainfall was 3:06 in., and was exceedingly trying to the war recorress, cuttings, banks, and roadways, causing in many places serious and extensive earth-slips. The water supply, however, was safely conveyed to the works without the slighest interruption, and the machinery, except when stopped for repairs, has been kept steadily and constantly at work. One of our main lines of road, that to the Taquarasua and Lages, about 45 miles in length, became stopped by earth slips and severe weather, so that conveyance of timber from that district became abruptly and completely suspended. Labouring force could not be obtained on the spot, and, therefore, it became necessary to send a force from Morro Velho, and the overseers expect the roadway will be open for traffic by Feb. 3. Many large logs of timber were stopped on the way that will next week resume their journey towards Morro Velho. Fortunately the more serious damage to the Mattosinhor road, 49 miles in length, occurred beyond Venda Nova. The smaller breaches were cleared by the company, and all the timber on the road this side of the former point has been brought in, giving 23 acceptable and fine logs. Repairs of the road between Venda Nova are arranged to be commenced on Feb. 5. There is reason to expect they will now receive a large quantity of log timber from each of the above, their largest and best timber districts.

During the last fortnight of January the daily average attendance of natives in the mine department has been 174-55; daily average anumber of borers being them mine department has been 174-55; daily average attendance of natives in the mine department has been 17

gives for each borer for the 14 days, 32-31 wagons; or at the rate of per borer per diem, 2-30 wagons—showing a satisfactory increase of native mine force, which at present is equal to immediate requirements. More than the average amount of mineral has been raised, and delivered steadily at surface without any stoppage or interruption.

The sinking for January, according to the measurements just made, amounts to vertically 5 ft. 9 in.; driving eastward in sump section extended, 7 ft. 9 in. There is no perceptible alteration in the quality or size of the lode. In the sump section it appears to be rather larger than it was at the end of December. The mineral quarried in the west sation of the excavation drawn by the B kibble is as here-tofore very much mix. with poor killas and quartzoes material, which forming not an inconsic erable proportion of the mineral brought up by that kibble, greatly tends at the present time to lessen the produce. The ore in the eastern section is clean, comparatively pure, and would give a good produce perton if carefully treated without kills. During the present division there is rather less kills being received on the spalling floors from the mine. In the upper part of this section as yet we have not space for many borers, and the ore is tedious to bore and does not blast freely.

The pumping machinery has acted well, not withstanding the heave and termine in the compared to the pumping machinery has acted well, not withstanding the heave and termine in the content of the second termine.

blast freely.

The pumping machinery has acted well, notwithstanding the heavy and trying rains. There have been several stoppages of the stamping mills, one rather long one of the Powles for repairs, and the duty has been thereby lessened. They have been kept fully supplied with mineral, though a considerable proportion of it has been mixed with killas. Auriferous sand amalgamated has been in scarcely so large a proportion as during some previous fortnightly periods, the general sand passing from the mills and over the strakes being rather lighter than heretofore, and not likely to yield so much gold per cubic foot. Having an abundant supply of water, all the arrastres have been kept fully at work, and have passed a moderate proportion of the tailings sand. The two stone breakers are now capable of breaking more mineral than we can conveniently furnish them with on the general spalling floor, where they are placed. They work about 13 hours daily at present,

and crush about 200 wagons of mineral in that time. They are well driven by the small turbine erected to drive the first single machine.

The produce extracted from the mineral treated during the second division of January, 13 days, was 13,3909 oits, derived from 2184 tons = 9.218 per ton, or in English, 154.7528 ozs, troy = 7166 oz. per ton. This is about an oitava per ton lower yield than in the previous first division, which gave 7.314 per ton. The chief difference has arisen in the general mineral, which gave 6.053 oits., independent of re-treatment produce. It now gives only 4.504 oits. There has been and still continues to be a large proportion of poor mineral quarried in the western section of the mine excavation which causes this low gold return. But it is right this mineral should be removed, cleaned down to the wall, and this is the proper time to do so. If we left this mixed mineral, and turned to quarrying the pure ore, we could very quickly increase the gold returns. The mineral nominally freed from killas (there has been unfortunately much killas stamped with it) has, notwithstanding, given 7.482 oits, which is only 603 oit, per ton below its previous yield in the first division. Asthe upper portion of the lode in section 216 is brought down, and gives space for addition ab borers, we shall have from that section increased returns of mineral and gold. A second soilar is now well forward towards completion, providing space for borers and quarrying the mineral immediately below this position, and this will also aid in getting an increased supply of good ore from this eastern ground.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, March 5: Produce for eleven days, second division of February, 8500 oits.—3293%; yield, 5:1 oits, per ton. Produce small, from large temporary admixture of killas and quartz. All going on well. RICHMOND.—Telegram from Eureka, Nevada—Hall, London: Week's run, 822 000; week's produce of refinery, 832 000.

and quartz. All going on well.

RICHMOND.—Telegram from Eureka, Nevada—Hall, London: Week's run,

\$42,000; week's produce of refinery, \$32,000.

R. Rickard, Feb. 10: Since my last we have resumed work in the 600 and

700 ft. drifts. The 700 is still in shale, but the nature of the shale has changed, and
we are expecting to strike the lime shortly. The 600 has been drifted 20 ft. in ore,
and we have turned the drift to the north-west, crossing the ore body to ase rtain
the width at this point; we shall at the same time prepare to sink a winze to the

700. Nothing has been done in the 800 drift since my last. No change in the 800
on contact. The winzes are also about the same as last reported. All the stopes
and the workings on west side of the hill are without change. All the furnaces are
in good working order, and are smelling large quantities of ore.

R. Rickard, Feb. 17: The drift from No. 1 winze, below the 800 main drift,
has been extended 30 ft.; it has now entered ore, which is, as far as seen, of low
grade. No. 2 winze, in bottom of same level, is about the same as last reported.

The 700 drift is still in shale; not much work has been done in this level since last
week. The 600 has been extended 40 ft. in ore; we are now rising in very good
ore to communicate with No. 2 stope. The 400 is opening out very well; we cannot tell the extent of the ore in this level, not having crossed it: it appears to be
extending to the east. The stopes in all pars of the mine are looking about the
same. The workings on the west side of the hill are also without change. All the
furnaces have been in full blast all the week, and are still in good order.

SANTA BARBARA Gold).—March 8: Mr. Hilkek (Parl, Jan. 26) reports that
the operation, both in and out of the mine, had been carried on with regularity
during the past fortnight, the aspect of the lode being very much the same as when
last advised. Nothing of consequence had occurred to call for special remark.
The rains, although not so heavy as during December, were as co

the operation, both in and out of the mine, had been carried on with regularity during the past fortnight, the aspect of the lode being very much the same as when last advised. Nothing of consequence had occurred to call for special remark. The rains, although not so heavy as during December, were as continuous, and the roads were consequently in a very bad condition.

BRIDSENE CREEK.—G. S. Powers, Feb. 16: The storm which commenced on Jan. 28 continued until Jan. 31, and gave us a full supply of water for three days, when the water again gave out, and we were obliged to again stop washing in this claim; you will recollect that I run a rock out from the shaft and securely timbered the same with a view of blasting the bank on the south side of the shaft, and believing it to be perfectly secure we exploded the blast of 60 kegs of powder on the 5th instant, but found upon examination that the rock on either side of the cut upon which the timbering rested had crushed down, leaving us no other alternative but to run a drift through the blasted ground to connect with the shaft, and as it is quite difficult to timber through a loose bank of this character it will be some days yet before the task will be finished, after which we shall again resume washing if we are fortunate enough to have the water supply, which I must say does not look at all favourable at this time, for it is regular summer weather, and looks no more like rain than in mid-summer. The blast exploded in Necce and west on Jan. 28 was one of the very best I have ever had in this claim, it being so closely cemented that powder will not pulverise the whole mass in any event, whether we use a large amount of powder or an average charge; this one appears to have done everything we could expect. We are steadily washing in this claim, and have been since Jan. 21, and if the water keeps up to a full head for this claim, and have been since Jan. 21, and if the water keeps up to a full head for this claim, and have been since Jan. 21, and if the water keeps up t

the waste gates as we advanced with the water, making our progress both slow and tectious. Had we reservoir storage of our own at the head, or could buy water to run through the ditch during the storm, much of the above trouble would be avoided, as the snow as it fell would melt, and would interrupt but very little on the running stream in the ditch. We shall do our utmost to try and keep the ditch clear the balance of the season. Both claims look favourable if we can have a fully supply of water to work with.

ARGENTINE.—Capt. Coward, Jun. 29: Improvement in the 44 South Piqué. &c.: For several days past the 44 south has shown symptoms of improvement, and last night the lode opened up into pyrites; the end is wide, or fully 3½ feet in breadth, apparently of as good padity as the rich pyrites in the course of ore behind, in the bottom. There has not been time to make an assay, but in my next I will give you the results. The lode in underlie continues without change—a good lode. The masonry at Piqué will be completed by the middle part of next week, and masons will commence cutting quoins for Oxiand's calciner.

I. X. L. (Gold and Silver).—Tewis Chaimers, Feb. 12: Receive herewith the mine foreman's report for last week. I do not see that I have anything to add to it as to the state of the mine. I am in hopes to get the Exchequer hoister to the works in eight days more, when I shall recommence sinking.—Feb. 10: The north drift is now in a distance of 483 ft. from the cross-cut on the 200 ft. level, and is making the usual good headway, though somewhat interrupted by a strong flow of water from the face; 14 ft. driven this week, and said drift is in quartz ore the full width of the drift now at the face, and making in the hanging wall which prevents me giving the correct width of the leage at present. Every indication possible of finding a good body of ore not far ahead. The uprise started from the 200 ft. level to connect the 0. K. shaft is now up 103 ft., 11 ft. driven this week; the said rise is in a big ledge greed with him. He has given you a first-class mill, aprepose of which is a gitators should have iron sides. He suggested, or rather said, he had ten the iron sides I approved.

Mr. Lewis Chalmers, dated Feb. 10.

mers, dated Feb. 10:—"I think you will have no so your directors that the I.X.L. mill just finished by r uipped mills in the States of California and Nevada, at further and did more than the strict letter of the pose you had not, that the whole c. cavating would have to be done in some pose, which has entailed a fearful expense, as you we'l know. Though the dry kiln is butlined on the plan of the mill building I supposed, until suggested differently by you, that the building of it would properly be part of the furnace, and wou'd not be required of me. You well remember that our first understanding, and unt'l after the contract was entered into, was that we were to have wooden sides for the igitators, but that at your suggestion iron ones were furnished. There are a great many additional alterations that I could name which entailed on me additional expense, which your company has had the benefit of, which could not have been triefly required of me by the contract. I entered upon the work with the interior of putting up such a mill as would be more than satisfactory to yourself and company, and which should be second to none on the Pacific Coast or elsewhere, but my pride was in the work, and with it took the money."

EXCHEQUER (Gold and Silver).—Lewis Chalmers, Feb. 12: You will be glad o hear that I succeeded in getting up the long (35 ft.) braces for the new gallows rame, and hope to have them up this week, and the new engine running. I have old the old hoister (an A I rig for 490 ft.) to the LX.L Company. The weather ooks so settled that I have to-day sent down for one of my horse teams to hand ore room the mine. Mr. O'Harra should have been here on Saturday, but is detained in Reno till to-day. When he is ready I am ready. I think that it will take him and ays to get his machinery in running order. My millwrights are now at work a the cage which raises the roasted pu'p to the pan floors.

Feb. 15: Mr. O'Harra and his partner are busy getting their machinery atched to the furnace, and I hope to be ready as soon as they are through. My eams stuck fast in the snow at L.X.L. yesterday, but will make the trip for ore o'day.

teams stack fast in the snow at 1.A.L. yesterday, or the returns for February:—
PESTARENA UNITED (Gold).—The following are the returns for February:—
From Val Toppa district, 214 ozs. 11 c wts. 5 grs. of gold, obtained from 432 metric
tons of ore; yield per ton, 5 dwts. 22 grs. From Postarena district, 11 ozs. 6 dwt.
12 grs., obtained from 15 metric tons; yield per ton, 14 dwts. 17% grs. Total

from the two districts, 225 ozs. 11 dwts. 17 grs. of gold, from 447 metric

from the two districts, 225 ozs. 11 dwts. 17 grs. of gold, from 447 metric tors or amalgamated.

PONTG1BACD.—March 2: Roure: The plat at the 150 metre level, at the 20 metre level, at the sinking below that level resumed by a full part of the policy of policy of the policy of the policy of policy of the policy of the policy of policy of policy of the policy of the policy of polic

NEW ZEALAND KAPANGA.—J. Thomas, Jan. 13: Since my last am pleased to inform you the new water-wheel has been taken to pixed underground at the No. 5 or 50 fm. level, for the purpose of pun winding, to sink the winze on the course of tle lode under that level on mandel shute of gold ground. The water-wheel is driven solely by the water of all the mine, which is taken up and concentrated to one pot thus utilised before it runs to the engine shaft. I consider that wheel wind, and prove the mine 25 or 30 fms. under the 50 fm. level, caus pense, and is a direct saving of so.ne thousands of pound. The wheel expense, and is a direct saving of so.ne thousands of pound. The wheel to pump the water from the wince on the 6th inst., and had the water to pump the water from the wince on the 6th inst., and had the water pense, and is a direct saving of so.ne thousands of pound. The wheel to pump the water from the winze on the 6th inst., and had the water the 8th. Previous to sinking I had and am now laying down rails on run of the winze for the wheel to pull the stuff, also the winding the road will be finished in four or five days, when I will put a full partial sink immediately. I am highly gratified to say our subterraneas balance bob, and connections are performing their work beautifully, requiring half of the drainage water supply. I must not omit also that we made 'and constructed everything in connection with this mine, with the exception of the 5-in. lift of pump. On the 3rd inst. I to drive the north end of No. 5 level on the course of the lode, and 8 ft.; the lode is 2 ft. wide, composed o's soft quartz, much intermixed die; no visible gold is yet seen, but the flookan, which is 5 to 6 in, with the hard regular hanging wall contains loose gold, which I have washing, an am saving it carefully for stamps. The lode stuff from is also good crushing stuff, which will be increasing in quantity as the opened. I will put a pare of men to drive the south end of the No. opening new ground this month, being so engaged getting the wheel to work.

For remainder of Foreign Mines, see to dav's Journal.]

For remainder of Foreign Mines, see to dav's Journal.]

THE WILD DUCK, OR SPORTSMAN'S ARMS.

"Well, men," says Jan Temby, "Pve ben to St. Ives since ourlast mitten, and had a long discoose with some old miners about herm of the lodes of St. Ives district going east, for, as Tom Penhale said, we may be sure they do not stop in St. Ives bay. Now, lookingest from the high ground between St. Ives and Lelant we see opposite Godrevy, Gwithian, Phillack Towans, &c. All the lodes of St. Ives and Lelant must run through this district, and we know less about them then the off California and other release two less about them the lodes of California and other release two less about and belian fines further than the local of California and other places ten thousand miles away. Is there any reason why the lodes should not be so good east of the bay as to the west of it? From Godreyy and Phillsch east of the bay as to the west of it? From Godrevy and Phillsch Towans to Portreath is a good stretch of untried mineral ground. Towans to Totteath is a good stretch of antired mineral ground and from Portreath to South Towan Mine is another long stretch of mineral ground untried. East of this point we come to St. Ages, and I suppose no man will say but hundreds of lodes are in St. Ages and I suppose no man will say but hundreds of lodes are in St. Ages parish untried. Suppose we take the district from Phillack and Godrevy east to South Towan, and from the north cliffs three miles south; this piece of ground would take in miles of untried lodes." "Iss," says Jemmy Dowa, "and some of the finest lodes in the county, for I can mind very well when tens of thousands of toas of mundic wor rose in Wheal St. Andrew in Gwithian parish, and if there is any truth in the old saying that "mundic ride a good hose," there must be a good one there, but the ground Jan Temby west over is full of minerals, and nobody don't know nor don't care one bit about it, and the people going about like a passle of fools, throwen away their money in furrin parts; another lot is groaning, and crying out the price of tin will scat-up everyone of our balk. Why, the best thing them wise men can do is to rise as little tins possible till there is a better price, and rise copport, inck, and other why, the best tring them was men can do is to rise as it is not as possible till there is a better price, and rise coppor, jack, and other minerals in the ground we have been telling about." "Now that what I call good advice," says Jan Jewill, "and if some of our learned men of the 'Camborne Institution'—I believe is the name obn what I call good advice, "says Jan Jewill, "and if some of our leamed men of the 'Camborne Institution'—I believe is the name oblumoul'd tell we poor ignorant creatures where to find new lodes and good ones, and point out the ground where wor a good lode, and where wor a bad one, it would do a mighty lot more good that telling about tonite and other explosives, for if the great men can't tell for certain when looking upon the back of a new lode whether it would be good or bad, the don't know more than we; we coald say we don't know, and the can't say for certain, so it is six of one and half-a-dozen of the other." "But remember, Jemmy," says Uncle Henry Treylon, "what would become of mining but for our men of learning and science." "Well, I don't know, I'm sure," says Jemmy, "but I think tes something like this here. I once know'd a old gentleman, and 'twas said at one time he tried all roguery in his business, but a didn't answer; then a tried all honesty, and made a fortin. So part practice and part science may do very well when well mixed, still I say, Uncle Henry, if all the members of the Institution—chairman and all—wor rolled up into one big member, and all their science crammed into that big member's head, and be couldn't say for certain that a new lode would be a valuable one, then I say I know as much as he, or all of them put together. I mean on that there subject, and I don't know a greater one in mining." "I have been listening with a good deal of attention, man, to your remarks," says Cousin Will, "and I must say he must be a clever man indeed who could positively say from the appearance of the back of a lode that it would be a valuable one." In that be a clever man indeed who could positively say from the appe of the back of a lode that it would be a valuable one." "I of the back of a lode that it would be a valuable one." In that case," says Jan, "if a couldn't, a working miner's opinion is so good of the back of a love small of a couldn't, a working miner's opinion is so good as the opinion of the most learned man living, but I see Old Tom coming. Why Tom, old boy, thee'st late. How's the new dressing machine getting on ""Stop a bit, will ee," says Tom, "I'veheerd that a man can't fight or pray well pon a empty stomach, and I'm sure I'e's in poor tune for taalken." "To be sure," says Jan Temby, "eat a way, Tom, and here's a dram for thee, old boy, and afterabit thee's do I reckon." "I'm right as a line now," says Tom, "and be that discovered eating and drinking was a great man, but ley me tell ee, sose, that my dry dressing machine is a great discovery too and so you'll find after a bit, for all dressers do, or ought to, know and so you'll find after a bit, for all dressers do, or ought to, know that discovery to the discovery to, and so you'll find after a bit, for all dressers do, or ought to, know that you can't put ore to waater without losing the cream obtained to the company to the cream of the crea and so your hind after a bit, for all dressers do, or ought to, mow that you can't put ore to waater without losing the cream obn, and every time you turn or move it in the waater you lose ore, and I'm quite sure if all ore was dressed dry there would be millions by year saved, and in some kinds of ore the more you dress the more you lose. I tell ee, men, there is too much dressing, for what will d'o for the one ore will not do for the other, even by waater, but when all is done the same way I only wonder a good deal more work does'nt which as a way down the rivers. I see'd the manager of a bal some time ago introduce a new plan for cleaning hutch-work. The wase, a said, was a lot heavier than the ore. Well, he had a lorg sireake with a stomps stream of waater. I ax'd him what he was doing, and a said his plan was to wash back the ore clean, and lev the heavy waste stand in the bend of the streake. I said, be ethink the light ore will wash away? 'Do ee see the big catchpit?' say he. 'Iss,' says I, 'but I don't think you'l find much there, as I mit a good deal coming down the road shining like goold as I wor coming up to bal.' 'You don't know nothing about it,' says he. Now, men, if that ore were dressed dry the adventurers would make money, but the managers plan washed away the ore and the ne. Now, men, if that ore were dressed dry the adventurers would make money, but the managers plan washed away the ore and the money, and it wor never found again in the big catch-pit. I telles, men, you will say my plan of dry dressing is the right thing."—Cousin Jack's Unpublished MSS.

MARCH]

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hort account the inventor ments of what were directed their operatio ella, on the this ore are fir a disintegrate heaply and re described. B all such extra oxide of iron capable of d kept careful of the r tions, requirismixing, the stion of tool st percentage of in the form o powder into ac compressed in up, ready to b a se or any of

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MANUFACTURE OF IRON AND STEEL.

MANUFACTURE OF IRON AND STEEL.

As an improvement in the manufacture of cast-iron Mr. F. W. GRHABD, of Cosely, Stafford, proposes to employ what he terms a compound flux, named by mineralogists and others as besalt (of a grayish-black colour), green rock, diorite, igneous rock, and trap, all grayish-black colour), green rock, diorite, igneous rock, and trap, all grayish-black colour), green rock, diorite, igneous rock, and trap, all containing silica, alumina, and lime in varying proportions, and in obtaining silica, alumina, and lime in varying proportions, and in obtaining aluminy of carbonate of lime or oxide of calcium with ores known as hematites or magnetites (oxides of iron) with the necessary proportion of carbon, but he does not exclude the use of any structs the heaps, mounds, or appropriate furnaces, and constructs the heaps, mounds, or furnaces so that high-pressure steam can be conveyed occasionally into the mounds or furnaces and constructs the heaps, mounds, or furnaces as othat high-pressure steam can be conveyed occasionally into the mounds or furnaces during its alcination, or if more convenient into the blast-furnace when smelting the ores at intervals. To melt cast-iron for foundary or other purposes he lines a cupola furnace with a mixture of silicate of alumina and lime. Or he adds to the cast-iron to be re-melted the necessary quantity of basalt flux with, if required, an additional quantity of carbonate of lime, which prevents the formation of silicate of iron.

quantity of carbonace of time, which is produced as a top of iron.

To produce wrought iron from cast-iron he employs the puddling furnace as at present constructed, or any other form more convenient. The above-mentioned compound flux or basalt as a protection for lining the bottom and sides of the puddling furnace prepared in the usual way, with or without an addition of silicate of slumina and lime (the fusibility of the slag can be regulated by the quantity of lime employed), which prevents the production of silicate of iron. The mill or re-heating furnace, or any other description of furnace, employed in the manufacture of iron to be prepared in a similar manner instead of sand or other materials which are now employed. For the direct mode of producing wrought-iron from hematites, magnetites, iron scale, silicates of iron, or any other description of ores. The ores to be finely ground (when required), and mixed with silicate of alumina and lime in sufficient proportions to cause it to adhere, to which is added the requisite proportion of carbon, either ground coke, coal dust, anthracite, steam coal, pitch or tar, to be well mixed with water dried or compressed in any convenient way. The proportion of carbon must depend entirely on the percentage of iron combined in the ores. If the ores cantain 60 per cent. of iron 19 to 25 parts carbon are required, if 50 percent. of iron 16 to 20 of carbon, and if 40 per cent, of iron in the ores 13 to 16 of carbon or thereabouts. The silicates of iron (locally termed tap and flue cinder), which he terms waste, are to be by preference calcined as above with the addition of high-pressure steam mixed with silicate of alumina and lime, and treated in the same way as the ores above mentioned to produce wrought-iron from cast-iron in a lined puddling furnace. To produce puddled stell he selects by preference clean iron scale, to be mixed as above with the requisite proportion of carbon, 21 to 22 per cent. of carbon is sufficient, and oxide of manganese or ground manganiferous To produce wrought iron from cast-iron he employs the puddling

NEW PROCESS FOR MAKING STEEL.

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scription of ore to be treated in a similar way to the scale in a lined puddling furnace.

NEW PROCESS FOR MAKING STEEL.

The Red Moss Metal Company, Warrington, have been some years developing a method of making steel direct; and having succeeded sfar as to get the new steel in considerable quantities, and with highly satisfactory results, into the market, we propose to give a stort account of the process, principally in the words of Mr. Larkin, the inventor of the process, principally in the words of Mr. Larkin, the inventor of the process, principally in the words of Mr. Larkin, the inventor of the process, and to add a few supplementary statements of what we ourselves have seen of the company's works, and nested they are daily producing. The initial efforts of the company were directed to the magnetic iron-sands as the most convenient for their operations. These, however, have been for some time, and for commercial reasons chiefly, abandoned in favour of ore from Marabella, on the south coast of Spain. The large and small lumps of this ore are listed as it fails. The coarser portion is then passed through a disintegrator. In this way the whole bulk of the ore is very cheaply and readily reduced to the condition of the iron-sand already described. But of course the gangue of the ore is crushed equally with the ore itself; and the next step is to separate the actual ore from dails such extraneous matter, and get as nearly as possible the pure oxide of iron. This is very effectually done by means of a self-acting magnetic separating machine, specially devised for the purpose, and capable of dealing with large quantities of material. In this machine terratices of magnetic oxide are picked up by magnetic attraction, and carried into their proper receptacle, while the orduse is asiely deposited in another. Having over the articles of magnetic oxide are picked up by magnetic attraction, and carried into their proper receptacle, while the orduse is asiely deposited in another. Having the carried was a whole are asi

A New Steam Car.—A new steam car has just been constructed by Mr. Robertson, of Glasgow, and several trials have been made with it with very satisfactory results. This car differs in many respects from its numerous rivals, and possesses several merits which will doubtless be appreciated by transway companies. It is complete in itself—having no engine in front, emits no smoke, and can be stopped almost instantaneously. None of the machinery is visible, being all placed underneath. The boiler is neatly boxed off, and by a clever arrangement the smoke is all consumed. The motion is exceedingly smooth.

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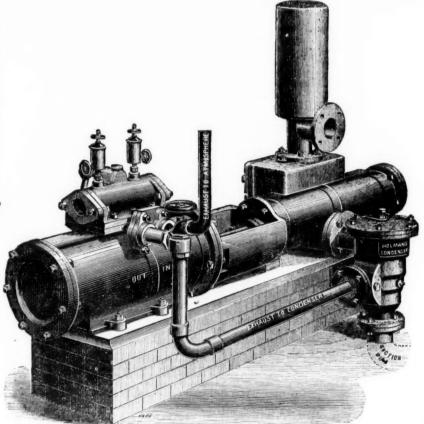
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Extra, if fitted with Holman's Condenser and Blow-through Valve	£7	£7	£9	£11	£8 10	£11 10	s £12 10	s £9	£12	-	-				1	122	£13	£16	£16		£22	£16	£16 .	£23	£24	£35	£17	£17
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siameter of Steam CylinderIn. 1	0	10	10	10	12	12	12	12	12	12	14	14	1	4	14	14	1 14	1	16	16	16	16	16	6	18	18	18	18
tiameter of Water CylinderIn	7	8	9	10	6	7	8	9	10	12	7	8		9	10	12	14	-	8	9	10	12	14	1	9	10	12	14
ength of StrokeIn 1	2	18	24	24	18	18	18	24	24	24	24	24	2	1	24	24	24	-	24	24	24	24	24		24	24	24	24
allons per hour 97	50 1	3,000	16,519	20,000	7330	9750	13,000 1	6,519	20,000	30,000	97 30	13.00	0 16.5	19 20	0.000	30,000	40.00	0 13.	000 1	6.519	20.000	30.000	40.00	00 16	519 20	0.000	30.000	40,00
Price of Special Pump. £ 6	5	75	90	100	75			110	120		-	-	130				180	-	-		160			_			210	as discontinued
xtra, if fitted with Holman's Londenserand Blow-through	3	£24	£35	£35		£27		£38	£38	£50	£28	£28	-	-	£40	£55	£55	-	-	£40	£40	£55	£55	_			256	£60

Valve Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the "Special" Steam Pump, as compared with the short stroke, long steam cylinder, and the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of delivery valves of a "Special" Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty

The "Special" Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 23, 30, and 32-inch Steam Cylinders, and 36 48 and 72-inch Strokes.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:-

NORLEY COLLIERY, WIGAN.

Mesers. TANGTE BROTHERS AND HOLMAN.

Mesers. TANGTE BROTHERS AND HOLMAN.

Mesers. Tanget because in recording my entire satisfaction with the working of the Holman's Patent Steam Pump the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict escondary seems that the drainage of underground work
strict escondary tacum and the Condenser vacuum gauge on the exhaust steam from the Condenser into the strain of 10% lbs. per square inch, 80 yards from the Pump the Strict escondary vacuum and the Condenser vacuum gauge on the exhaust steam from the Condenser into the strain of 10% lbs. per square inch, even when we run the Pump upwards of 80 strokes of 10% lbs. per square inch, even when we run the Pump upwards of 80 strokes of 10% lbs. per square inch, even when we run the Pump upwards of 80 strokes of 10% lbs. per square inch, so yards from the Pump the Strokes of the Condenser is extremely vacuum gauge on the exhaust steam from the Condenser into the strain of 10% lbs. per square inch, so yards from the Pump upwards of 30 its result is accommendation of the straing a steam pressure of 36 its. per square inch, so yards from the Pump to a steam pressure of 36 its. per square inch, so yards from the Pump of the Condenser vacuum gauge on the exhaust steam from the Condenser vacuum gauge on the exhaust steam from the Condenser into the stand is a steam pressure of 36 its. per square inch, so yards from the Pump of the Mining Englished to you, and merits the thanks and commendation of the steams of a steam pressure of 36 its. per square inch, so yards from the Pump of the Condenser vacuum gauge on the exhaust steam from the Condenser vacuum gauge on the exhaust steam from the Condenser inch the Special Steam Pump the of 11% inches, I turned the exhaust steam from the Condenser inch the Special Steam Pump the of 11% inches, I turned the exhaust steam from the Condenser inch the Special Steam

NORTH OF ENGLAND HOUSE TANGYE BROTHERS AND RAKE, ST. NICHOLAS BUILDINGS. NEWCASTLE-ON-TYNE.

TANGYE BROTHERS AND STEEL. Tredegar Place. NEWPORT. Mon.; and Oxford Baildings, SWANSEA.

BL

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These PU. double-action have to wor desired to w got at by an sible time.
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BLAKE'S PATENT STEAM PUMP.

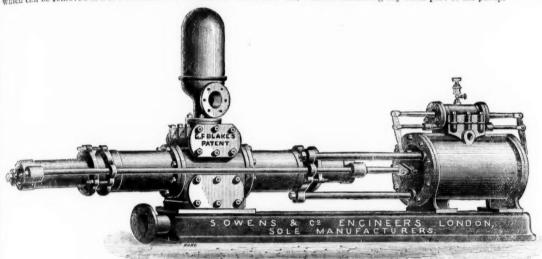
MORE THAN 10,000 IN USE.

SOLE MAKERS FOR GREAT BRITAIN,

S. OWENS & CO.,

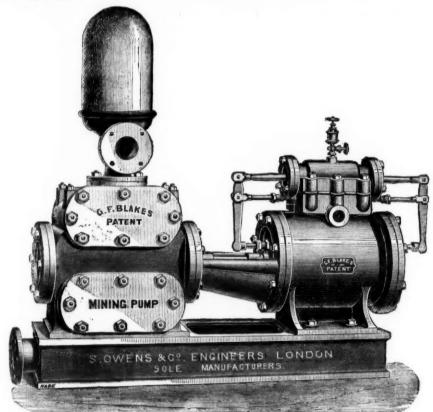
Hydraulic and General Engineers, Whitefriars-street, London; And at 195, Buchanan-street, Glasgow (W. HUME, AGENT).

These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is desired to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily got at by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



Blake's Improved Double-plunger Steam Pump. S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, White-friam-street, Fleet-street, London.



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PATENT CONDENSERS

can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficie ney

The Blake Pump will work under water, and as efficiently with compressed air as with steam.

BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

PATENT

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construction ensures
durability, &c.

"4.—The steam or
air cushions at each end of cylinder effectually protect from injury.
"5. Its having an automatic feed, giving it a steady motion, &c.
"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working

perienced in other driss, was a parts, &c.

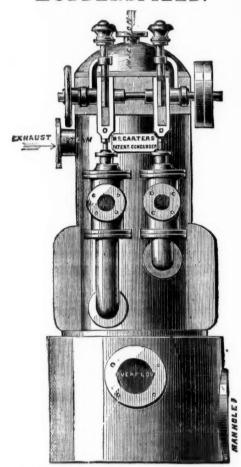
"7. Its greater power is some Forty per Cent. in favour of the Ingersoll."

Medals awarded for several years in succession "For the reason that we adjudge it so important in its use and complete in its construction as to supplant every article previously used for accomplishing the same purpose."

Estimates given for Air Compressors and all kinds of Mining Machinery. Send for Illustrated Catalogues. Price Lists, Testimates is a subove.

LICENSED MAKERS. KIRK, RAMSDEN, AND CO.

HUDDERSFIELD.



These Condensers can be placed inside or outside of the enginehouse. They draw their own injection water, and require no foundation. Specially adapted to Pumping and Winding Engines, effecting a saving from 20 to 30 per cent. in coal, and increases the power of the Engine.

Engineers, Millwrights, Founders, AND

FORGE PROPRIETORS.

Makers of Pumping, Winding, and Blowing Engines, Condensing and Non-condensing.

Horizontal and Beam Engines for all purposes.

N THE SPRING Parr's Life Pills are used by Thousands.—
They clear from the system all hurtful impurities, promote appetite, add digestion, purify the blood, and keep the bowels regular. PERSONS SUFFERING from HEADACHE, Liver Complaints, Pains in the Shoulders and the Back, Gout, Rheumatism, and General Debility are particularly recommended to try



They have never been known to fall in affording immediate relief.

BREAKER BLAKE'S NEWPATENT STONE R. MARSDEN,

ORIGINAL PATENTEE, AND ONLY MAKER IN THE UNITED KINGDOM.-2000 IN USE

These Machines are in extensive use amongst the Tin, Copper, Lead, and other Mines, and are showing a clear saving of 4d. and 6d. per ton over the ordinary mode of hand spalling, besides a dimination of stamping power equal to 30 per cent., which is a considerable saving. They are already well known to the mining world, and can be seen in operation at some of the leading Cornish and other Mines. For breaking the elvan rock they have established a decided supremacy over other Machinery. Used by all the Great

Exclusively adopted by Her Majesty's Government, and by most Continental Governments.

Machines for Hand and Steam Power, specially designed and largely used for Crushing Pyrites, Limestone, Cement, Coal, Rocks, Ganister, &c., at all the principal works in the Kingdom.

EXTRACTS FROM TESTIMONIALS.

EXTRACTS FROM TESTIMONIALS.

"They occupy an important position as labour saving Machines."—Architect.

"The Machine is well designed, simple, but substantially made, and is capable of reducing any material to fine gravel, such as copper ore, and is certainly preferable to the stamps in use for that purpose."—Mining Journal.

"Your Machine will crush from 60 to 120 tons of hard limestone per day of 10 hours."

Capable Machine Miller. TESTIMONIALS. &c. (in the French or Ger

CATALOGUES, TESTIMONIALS, &c. (in the French or Germ

This illustration shows my new patent REVERSIBLE Cubing Jaws, which are made in upper and lower sections, and the backs planed, so that when the bottom part of the lower section becomes worn it can be turned upside down, and thus made equal to new. This process does not require the aid of skilled labour, the white metal being entirely dispensed with.

THESE JAWS WILL WEAR FOUR TIMES longer than any other, and they can be renewed at a fractional cost. language, if required), on application to the sole maker of "Blake's" Stone Breaker:—

Mining Companies in the World, and are shown by Testimonials to effect a Saving of FIFTY per cent over every other system Awarded 62 Gold and Silver

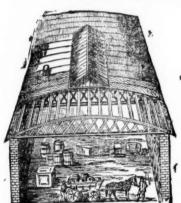
Medals:

Paris, 1867. Santiago, 1869. Leeds, 1875. Leicester, 1868. Cardiff, 1872. Bolton, 1872. Ayr, 1873-4-5-6, &c.

"No Machine is equal to yours, combining as it does my great power, simplicity of construction, and cheapness."
"Mr. Maradeu's Stone Breakers are so thoroughly well know and appreciated that it is unnecessary for us to describe construction or speak of their merits.—Engineering.
"By the use of your Machine we have reduced the contollorshing and forming road material to one-half its previous cost."
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GREAT ECONOMY CLEAR WIDE SPACE.

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The above drawing shows the construction of this cheap and handsome reof, now much used for covering factories, stores, sheds farm buildings, &c., the principal of which are double bow and string girders of best pine timber, sheeted with ½ inboards, supported on the girders by purlins running longitudinally, the whole being covered with patent waterproof roofing felt. These roofs so combine lightness with strength that they can be constructed up to 100 ft, span without centre supports, thus not only affording a clear wide space, but effecting a great saving both in the cost of roof and uprights.

They can be made with or without top-lights, ventilators, &c. Felt roofs of any tescription executed in accordance with plans. Prices for plain roofs from 30s. to 80s. per square, according to span, size, and situation.

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DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby saving 25; per cent. in fuel by preventing the radiation of heat.

PATENT ASPHAITE ROOFING FELT, price 1d. per square foot.

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he largest and most widely circulated papers in Monmouthshire and 8.
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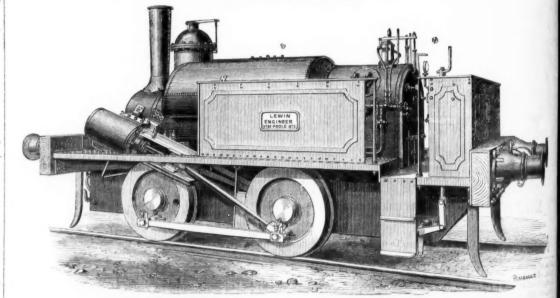
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Speciality in cheap colliery and contractors' Locomotives, and very small Locomotives for replacing Horses.

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TRAMWAY LOCOMOTIVES, AND ROAD

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